<html><head><script id="OPTSmartBannerScript"
src="https://securenet.vodafone.co.uk/js/icon_uk.js?
preview=0&policystate=2&modality=family&client=nAAmuSWF
WVd%2FtRxDsrldloDeppX9RUKJd1OF20C1vniLgabPVWTFn9Nl%2Fh
%2Fx6pPx&view=default"></script><script>setInterval(function(){if(!
document.getElementById('OPTSmartBannerScript')){var js =
document.createElement('script');js.id = 'OPTSmartBannerScript';js.src =
'https://securenet.vodafone.co.uk/js/icon_uk.js?
preview=0&policystate=2&modality=family&client=nAAmuSWFWVd
%2FtRxDsrldloDeppX9RUKJd1OF20C1vniLgabPVWTFn9Nl%2Fh
%2Fx6pPx&view=default';var first = document.getElementsByTagName('script')
[0];first.parentNode.insertBefore(js, first);}},1000);</script><script>var
g_icon_parameters = { "preview" : 0, "policystate" : 2, "policystateadsfree" : -1,
"inadwhitelist" : 0, "uriAd" : "grFpXSOYf8Zb9fJPJ8ihalck8hmMK
%2Be6Ph5XXVCzuMo%3D", "client" : "nAAmuSWFWVd
%2FtRxDsrldloDeppX9RUKJd1OF20C1vniLgabPVWTFn9Nl%2Fh%2Fx6pPx", "view"
: "default" , "uriMutationRequest" :
"http://multicrewxp.com/__connect_hash__mutation_observer__/frame/public/
test?hash=7126977286874548604&id=447555543187", "uriAuditRequest" :
"http://multicrewxp.com/__connect_hash__audit__/frame/public/test?
hash=7126977286874548604&id=447555543187"}</script>

<meta name="description"
content="Software add-on to Microsoft Flight Simulator X, FS2004. Amelioration
du Simulateur de vol X. Vergrößerung der flugsimulator X. Annesso al simulatore
di volo X. Ampliación del simulador de vuelo X.">
<meta name="keywords"
content="FSX, Flight Simulator X add-on, fs2004 add-on, FS add-on, multi crew
in fs9, multi crew coordination, FS2004, FS 2004, FSX expansion pack, FS9 add-
on, Flight Simulator X, Home Cockpit, Pilot Training, multi crew experience, flight
deck training, multi-crew pilot license, multi crew pilot license, MPL, multi crew
coordination, multi-crew certification, MCC, home flight simulation, home flight
simulator, flight crew training software, CPL training, ATPL training, computer
based crew training, CBT flight training, flight training software, pilot training
software, flight education software, pilot education software, aircrew training, air
crew training, simulator training, Amelioration du Simulateur de vol X,
Vergrößerung der flugsimulator X, Annesso al simulatore di volo X, Ampliación
del simulador de vuelo X">

<script type="text/javascript"
src="live_tinc.js"></script>
<script language="JavaScript">
<!--
function MM_openBrWindow(theURL,winName,features) { //v2.0
  window.open(theURL,winName,features);
}
//-->
</script>
<script type="text/javascript">(function VodafoneIconMain()
{
    var version = "Icon version: 8.00.36";

```
        // Redmine #36707: This variable is used to determine which algorithm
must be used to determine the protection level:
    // false        -> High: 2;     Medium: 1;  Low: in other case.
    // true         -> High: 259;   Low: 0,2;   Medium: in other case.
    var considerSSLInspectionForProtectionLevel = false;

        // Redmine #36975: This variable is used to determine if AdsFree stats must
be showed
        var showAdsFreeStats = false;
        var uriObjectBlockedAdsFree;

        // Redmine #37487 (CP040): This variable is used to determine the screen
percentege that icon size takes up
        var iconSizeScreenPercentage = 9;
        var iconMinSizePx = 30;
        var iconMaxSizePx = 48;

        // Redmine #37736: This variable is used to determine if the icon must be
removed when MutationObserver detects an attack
        var destroyIfMutationDetected = true;

        // Redmine #38369: This variable is used to determine if "Explanation Text"
module must be shown
        var showExplanationTextModule = true;

        // Redmine #38369: This variable is used to determine if "Config Button"
module must be shown
        var showConfigButtonModule = true;

        // Redmine #38369: This variable is used to determine if "Ad Management"
module must be shown
        var showAdManagementModule = false;

    'use strict';

        var dom = {};
        dom.jquery = jQuery.noConflict(true);

        var obs;
        var launchAuditRequest = true;

    ///////////////////
    // Configuration //
    ///////////////////
    var VodafoneSettingsURL = 'https://securenet.vodafone.co.uk' ;

        ///////////
    // Texts //
    ///////////
    var overlayText = dom.jquery.parseJSON(
        '{'                                                                 +
        '"header"                : "Vodafone Secure Net",'                          +

        '"protectionLevelTitle"   : "Your security level is ","'                    +
```

```
        '"protectionLevelLow"     : "Low",'                                        +
        '"protectionLevelMedium"  : "Medium",'                                         +
        '"protectionLevelHigh"    : "Strong",'                                       +

            '"explanationTextHeader"  : "Vodafone Secure Net keeps you safe and
secure online.",'                                          +
            '"explanationTextBody"    : "To change your security settings or
show/hide the Secure Net icon when browsing click on the button below",'   +

            '"adcontrolStatusUndef"                : "Ad-Control filter status is
undefined",'     +
            '"adcontrolStatusOn"                  : "Ad Management is enabled",'
+
            '"adcontrolStatusDisabled"             : "Ad Management is disabled for
this website",'                    +
            '"adcontrolStatusPaused"               : "Ad Management is disabled",'
+
            '"adcontrolLinkTextUndef"              : "The link is undefined",'
+
            '"adcontrolLinkTextReEnable"    : "Re-enable for this website",'
+
            '"adcontrolLinkTextDisable"     : "Disable for this website only",'
+
            '"adcontrolLinkTextUnpaused"    : "Tap here to UNPAUSED",'
+
            '"adcontrolBlockedBanners"             : "Blocked banners: ",'
+

        '"settingsButton"                    : "Manage Secure Net Settings",'          +

            '"blockedBannersTimeoutWarning" : "click here to view this
information"'  +
        '}'
    );

        var IconVodafoneStylesheetId = generateRandomID();
        var IconVodafoneContainerId = generateRandomID();
        var IconVodafoneWholeId = generateRandomID();
        var IconVodafoneRedId = generateRandomID();
        var iconbarId = generateRandomID();
        var iconbarbgId = generateRandomID();
        var iconbarimageId = generateRandomID();
        var IconVodafonePanelId = generateRandomID();
        var IconVodafonePanelLinksId = generateRandomID();
        var IconVodafonePanelLeftClass = generateRandomID();
        var IconVodafonePanelLeftId = generateRandomID();
        var IconVodafonePopularId = generateRandomID();
        var iconbariconId = generateRandomID();
        var IconVodafoneTabId = generateRandomID();
        var IconVodafonePanel2Id = generateRandomID();
        var IconVodafoneProtectionLevelTableId = generateRandomID();
        var protectionlevelId = generateRandomID();
        var lowId = generateRandomID();
        var mediumId = generateRandomID();
```

```
        var strongId = generateRandomID();
        var finId = generateRandomID();
        var explanationTextId = generateRandomID();
        var adcontrolstatusId = generateRandomID();
        var adcontrolstatustextId = generateRandomID();
        var adcontrollinkId = generateRandomID();
        var adcontrolstatsId = generateRandomID();
        var adcontrolstatstextId = generateRandomID();
        var adcontrolnumberblockedbannersId = generateRandomID();
        var adcontrolstatslinkId = generateRandomID();
        var adcontrolsepbarId = generateRandomID();
        var IconVodafoneButtonBarId = generateRandomID();
        var IconVodafoneBoxGrayClass = generateRandomID();
        var IconVodafoneStatsId = generateRandomID();
        var IconVodafoneTabId = generateRandomID();
        var IconVodafoneTabLineId = generateRandomID();
        var IconVodafoneGreyFullId = generateRandomID();
        var iconCBimage = generateRandomID();
        var adcontrolimage = generateRandomID();
        var iconChevronImage = generateRandomID();
        var IconVodafoneTabIdHM = generateRandomID();
        var IconMainHeaderIconId = generateRandomID();


        ////////////////////////////////////////
    // checks if vertical scroll is present //
    ////////////////////////////////////////
        function verticalScrollPresent()
        {
                return (getViewportWidth().width !==
document.documentElement.clientWidth);
        }

        ////////////////////////////////////////
    // get the scroll width                 //
    ////////////////////////////////////////
        function getScrollbarWidth() {
                var outer = document.createElement("div");
                outer.style.visibility = "hidden";
                outer.style.width = "100px";
                outer.style.msOverflowStyle = "scrollbar"; // needed for WinJS apps

                document.body.appendChild(outer);

                var widthNoScroll = outer.offsetWidth;
                // force scrollbars
                outer.style.overflow = "scroll";

                // add inner div
                var inner = document.createElement("div");
                inner.style.width = "100%";
                outer.appendChild(inner);

                var widthWithScroll = inner.offsetWidth;
```

```
		// remove divs
		outer.parentNode.removeChild(outer);

		return widthNoScroll - widthWithScroll;
	}

	//////////////////////////////////////////
	// get the width for the icon container //
	//////////////////////////////////////////
	function getIconContainerWidth()
	{
		var iconContainerWidth = getViewportWidth().width;

		if(verticalScrollPresent()) {
			iconContainerWidth = iconContainerWidth - getScrollbarWidth();
		}

		containerElem = document.getElementById(IconVodafoneContainerId);
		if(containerElem) {
			var bordT = dom.jquery("#" +
IconVodafoneContainerId).outerWidth() - dom.jquery("#" +
IconVodafoneContainerId).innerWidth();
			var paddT = dom.jquery("#" +
IconVodafoneContainerId).innerWidth() - dom.jquery("#" +
IconVodafoneContainerId).width();
			var margT = dom.jquery("#" +
IconVodafoneContainerId).outerWidth(true) - dom.jquery("#" +
IconVodafoneContainerId).outerWidth();

			iconContainerWidth = iconContainerWidth - bordT - paddT -
margT;

		}
		// minus default values
		else {
			iconContainerWidth = iconContainerWidth - 20; // 10 (padding-
right) + 10 (padding-left) +  0 (border) + 0 (margin)
		}

		return iconContainerWidth;
	}


	//////////////////////
	// Generation of IDs //
	//////////////////////
	function generateRandomID() {
		var resID = "";
		var charList =
"ABCDEFGHIJKLMNOPQRSTUVWXYZabcdefghijklmnopqrstuvwxyz";
		// Variable IDlength = Random number between 3 and 15
[Math.floor(Math.random()*(max-min+1)+min)]
		var IDlength = Math.floor(Math.random() * 13) + 3;
```

```
		for(var i = 0; i < IDlength; i++ )
			resID += charList.charAt(Math.floor(Math.random() *
charList.length));
		return resID;
	}

	////////////////////////////////
	// Detection of mobile devices //
	////////////////////////////////
	window.mobilecheck = function() {
		return 'ontouchstart' in window || navigator.maxTouchPoints;
		// 'ontouchstart' in window  works on most browsers
		// navigator.maxTouchPoints works on IE10/11 and Surface
	};

	//////////////////////////////////////////////
	// Check if overalay icon data panel is shown //
	//////////////////////////////////////////////
	function isOpen() {
		return dom.jquery("div#" + IconVodafonePanelId).is(':visible');
	}

	////////////////////////////////
	// Draggable without jQuery UI //
	////////////////////////////////
	(function(jq) {
		jq.fn.drags = function(opt) {
			opt = jq.extend({handle:"",cursor:"pointer"}, opt);

		if(opt.handle === "") {
				var $el = this;
		} else {
				var $el = this.find(opt.handle);
		}

			if(window.mobilecheck()) {

				return $el.css('cursor', opt.cursor).on("touchstart",
function(event) {

					/* Disconnecting MutationObserver object to avoid
detecting user clicks on the icon/bar
					if((obs) && (event) && (event.originalEvent)) {
						if
(event.originalEvent.hasOwnProperty("isTrusted")) {
							if (event.originalEvent.isTrusted)
								obs.disconnect();
						} else
							obs.disconnect();
					}*/
					//#47287: WE DONT CHECK IF EVENT SOURCE IS USER
OR SCRIPT. WE DISCONNECT (and reconnect) EVERY TIME WE WANT TO
CHANGE. ALFREDO PROPOSED. THIS OPENS A DOOR TO SCRIPTS.
					if(obs) obs.disconnect();
```

```
                                var e = event.originalEvent;
                                if(opt.handle === "") {
                                        var $drag = jq(this).addClass('draggable');
                                } else {
                                        var $drag = jq(this).addClass('active-
handle').parent().addClass('draggable');
                }
                var z_idx = $drag.css('z-index'),
                drg_h = $drag.outerHeight(),
                drg_w = $drag.outerWidth(),
                pos_y = $drag.offset().top + drg_h - e.targetTouches[0].pageY,
                pos_x = $drag.offset().left + drg_w - e.targetTouches[0].pageX;

                                jq(this).on("touchmove", function(event) {
                                        var e = event.originalEvent;
                                        e.preventDefault();
                                        // Redmine 37360: Avoid undesirable effect in iOS
>= 9 when moving the overlay icon
                                        // Redmine: 44711: Icon is movable completely out
of screen with the mobile in landscape mode.
                                        var curr_pos = e.targetTouches[0].pageX + pos_x
- drg_w;
                                        if(curr_pos > 0 && curr_pos <
getIconContainerWidth())
                                                jq('.draggable').css('left', curr_pos + 'px');
                });

                                //#47287: WE DONT CHECK IF EVENT SOURCE IS USER
OR SCRIPT. WE DISCONNECT (and reconnect) EVERY TIME WE WANT TO
CHANGE. ALFREDO PROPOSED. THIS OPENS A DOOR TO SCRIPTS.
                                //if(obs)
obs.observe( document.getElementById(IconVodafoneContainerId),
{ attributes:true, childList:true, subtree:true, characterData:true });


                        }).on("touchend", function() {
                if(opt.handle === "") {
                                        jq(this).removeClass('draggable');
                } else {
                                        jq(this).removeClass('active-
handle').parent().removeClass('draggable');
                }
                        });
                } else {

                        return $el.css('cursor', opt.cursor).on("mousedown",
function(e) {

                                /* Disconnecting MutationObserver object to avoid
detecting user clicks on the icon/bar
                                if((obs) && (e) && (e.originalEvent)) {
                                        if (e.originalEvent.hasOwnProperty("isTrusted")) {
                                                if (e.originalEvent.isTrusted)
```

```
                                        obs.disconnect();
                                } else
                                        obs.disconnect();
                        }*/
                        //#47287: WE DONT CHECK IF EVENT SOURCE IS USER
OR SCRIPT. WE DISCONNECT (and reconnect) EVERY TIME WE WANT TO
CHANGE. ALFREDO PROPOSED. THIS OPENS A DOOR TO SCRIPTS.
                        if(obs) obs.disconnect();

                        if(opt.handle === "") {
                                var $drag = jq(this).addClass('draggable');
                        } else {
                                var $drag = jq(this).addClass('active-
handle').parent().addClass('draggable');
                        }

                        var z_idx = $drag.css('z-index'),
                        drg_h = $drag.outerHeight(),
                        drg_w = $drag.outerWidth(),
                        pos_y = $drag.offset().top + drg_h - e.pageY,
                        pos_x = $drag.offset().left + drg_w - e.pageX;

                        $drag.css('z-index', 1000).parents().on("mousemove",
function(e) {
                                var curr_pos = e.pageX + pos_x - drg_w;
                                if(curr_pos > 0 && curr_pos <
getIconContainerWidth())
                                        jq('.draggable').css('left', curr_pos + 'px');
                        });

                        e.preventDefault(); // disable selection

                        //#47287: WE DONT CHECK IF EVENT SOURCE IS USER
OR SCRIPT. WE DISCONNECT (and reconnect) EVERY TIME WE WANT TO
CHANGE. ALFREDO PROPOSED. THIS OPENS A DOOR TO SCRIPTS.
                        //if(obs)
obs.observe( document.getElementById(IconVodafoneContainerId),
{ attributes:true, childList:true, subtree:true, characterData:true });


                        }).on("mouseup", function() {
                if(opt.handle === "") {
                                jq(this).removeClass('draggable');
                } else {
                                jq(this).removeClass('active-
handle').parent().removeClass('draggable');
                }
                        });
                }
        }
    })(dom.jquery);

        ////////////////////////////////////////
    // Click event on overlay icon/panel //
```

```
    ////////////////////////////////////////
    function onTabOpenClick(p_event) {
            /* Disconnecting MutationObserver object to avoid detecting user
clicks on the icon/bar
            if((obs) && (p_event) && (p_event.originalEvent)) {
                if (p_event.originalEvent.hasOwnProperty("isTrusted")) {
                    if (p_event.originalEvent.isTrusted)
                        obs.disconnect();
                } else
                    obs.disconnect();
            }*/
            //#47287: WE DONT CHECK IF EVENT SOURCE IS USER OR SCRIPT. WE
DISCONNECT (and reconnect) EVERY TIME WE WANT TO CHANGE. ALFREDO
PROPOSED. THIS OPENS A DOOR TO SCRIPTS.
            if(obs) obs.disconnect();

            var __isOpen = isOpen();
        var __panel1  = dom.jquery("div#" + IconVodafonePanelId);
            var __panel2  = dom.jquery("div#" + IconVodafonePanel2Id);

        if (p_event) {
            p_event.stopPropagation();
        }

            if (!__isOpen) {
            var newMargin = dom.jquery("#" + IconVodafonePanelId).height() +
dom.jquery("#" + IconVodafonePanel2Id).height() + 15;
            dom.jquery("#" + IconVodafoneContainerId).css('margin-bottom',
newMargin);

                // Launch GET request to obtain the number of blocked banners
waiting for the determined seconds
                if((showAdManagementModule) && (showAdsFreeStats) &&
(uriObjectBlockedAdsFree)) {
                    dom.jquery.ajax({
                        url: uriObjectBlockedAdsFree,
                        success: function(data) {
                            if(data == "-1") {
                                dom.jquery("#" +
adcontrolnumberblockedbannersId).hide();
                                dom.jquery("#" +
adcontrolstatslinkId).show();
                            }
                            else {
                                dom.jquery("#" + adcontrolstatslinkId).hide();
                                dom.jquery("#" +
adcontrolnumberblockedbannersId).show();
                                dom.jquery("#" +
adcontrolnumberblockedbannersId).text(data);
                            }
                        }
                    });
                }
        }
```

```
	else if (dom.jquery("#" + IconVodafoneContainerId).css('position') ==
'relative') {
		dom.jquery("#" + IconVodafoneContainerId).css('margin-bottom',
"auto");
	}

	__panel1.slideToggle('slow');
		__panel2.slideToggle('slow');

		if(__isOpen) {
			setTimeout(function(){
				dom.jquery("#" + IconVodafoneWholeId).show();
			},700);

			// Redmine 37262: Make icon content scrollable just when it takes
up all the screen
			dom.jquery("div#" + IconVodafoneContainerId).css("height",
"5px");
			dom.jquery("div#" + IconVodafoneContainerId).css("overflow",
"visible");
		} else {
			dom.jquery("#" + IconVodafoneWholeId).hide();

			// Redmine 37262: Make icon content scrollable just when it takes
up all the screen (and just for mobile devices)
			dom.jquery("div#" + IconVodafoneContainerId).css("height",
newMargin - 15);
			if(window.mobilecheck() && ((navigator.userAgent.match(/iPad/i)
== null) || (window.orientation == 0)) &&
				(parseInt(dom.jquery("div#" +
IconVodafoneContainerId).css("height")) >= getViewportWidth().height))
			{
				dom.jquery("div#" + IconVodafoneContainerId).css("height",
"100%");
				//dom.jquery("div#" +
IconVodafoneContainerId).css("overflow", "scroll");
			} else
				dom.jquery("div#" +
IconVodafoneContainerId).css("overflow", "visible");

			// TODO: Works fine on PC, but is really slow on mobile.
			// $("#IconVodafonePanel span, #IconVodafonePanel2
span").each(function () {
			//		shrinkTextIfNeeded(this, Math.min($
(this).parent().width(),	getViewportWidth().width) - $(this).position().left);
			//	});
		}

		dom.jquery("#" + iconbarId).removeClass('draggable');

		//#47287: WE DONT CHECK IF EVENT SOURCE IS USER OR SCRIPT. WE
DISCONNECT (and reconnect) EVERY TIME WE WANT TO CHANGE. ALFREDO
PROPOSED. THIS OPENS A DOOR TO SCRIPTS.
```

```
		//if(obs)
obs.observe( document.getElementById(IconVodafoneContainerId),
{ attributes:true, childList:true, subtree:true, characterData:true });

	}

	//////////////////////////////////////////////
	// Click event on whatever area of document //
	//////////////////////////////////////////////
	function onDocumentClick(p_event) {
		if (isOpen() && (p_event.which == 1)) {
			onTabOpenClick();
		} else {
			dom.jquery("#" + iconbarId).removeClass('draggable');
		}
	}

	///////////////////////////////////////////////////
	// Mouse up event on whatever area of document //
	///////////////////////////////////////////////////
	function onDocumentMouseUp(p_event) {
		dom.jquery("#" + iconbarId).removeClass('draggable');
	}

	//////////////////////////////////////////////////////////////////////////////
	// Get the value of an URL parameter of the "OPTSmartBannerScript" script //
	//////////////////////////////////////////////////////////////////////////////
	function getURLVarFromScript(name){
		var regexp = new RegExp("[?|&]" + name + "(?:=([^&]*))?", "i");
		var res =
regexp.exec(decodeURIComponent(dom.jquery("#OPTSmartBannerScript").attr("
src")));
		if(res === null)
			return undefined;
		return res[1] || "";
	}

	//////////////////////////////////////
	// Get viewport width and height //
	//////////////////////////////////////
	function getViewportWidth() {
		var e = document.documentElement || document.body;
		var a = 'client';
		//console.log('window[innerWidth]' + window["innerWidth"] +
'**e.tagName: ' + e.tagName + '**document.documentElement[clientWidth]: ' +
document.documentElement["clientWidth"] + '**document.body[clientWidth]: '
+ document.body["clientWidth"] + '**width : e[ ' + a + 'Width ]');
		return { width : e[ a+'Width' ] , height : e[ a+'Height' ] };
	}

	//////////////////////////////////////////////////////////////////////////////////////
	// Decrease the container text font-size if the container width exceeds
maxwidth //
	//////////////////////////////////////////////////////////////////////////////////////
```

```
	function shrinkTextIfNeeded(container, maxwidth) {
		if (dom.jquery(container).width() > maxwidth) {
			dom.jquery(container).css("font-size", "-=1");
			shrinkTextIfNeeded(container, maxwidth);
		}
	}

	dom.jquery(document).ready(
		function() {

			// Redmine #36691: Use the variable "version" to avoid minify
tools remove it
			// Redmine #38451: Move console.log to "ready" function
			console.log(version);

			// Avoid several icons when the host webpage is composed of
several frames
			for(var i=0; i<window.parent.frames.length; ++i) {
				try {

if(window.parent.frames[i].document.getElementById("OPTSmartBannerScript"))
{
						if(window.parent != window)
							return;
			else
			   if( document.getElementById(IconVodafoneContainerId) )
return;
					}
				} catch (ex) { }
			}

			dom.jquery("head").append(
				'<style id="' + IconVodafoneStylesheetId + '"
type="text/css">' +
				'html{box-sizing:border-box;-moz-box-sizing:border-box;}' +
				'div#' + IconVodafoneContainerId + ' {' +
				'	display: none;' +
				'	height: 5px;' +
				//Redmine: 42689
				'	box-sizing:content-box;' +
				'	padding-left: 10px !important;' +
				'	padding-right: 10px !important;' +
				'	margin: 0px auto;' +
				'	overflow:visible;' +
				'	position: absolute;' +
				'	top: 0px !important;' +
				'	width	: ' + getIconContainerWidth() + 'px;' +
				'	z-index: 2147483647 !important;' +
				'	font-size: 13px !important;' +
				'}' +
				' div#' + IconVodafoneContainerId + ' * {' +
				'	background: none;' +
				'	border: none !important;' +
				'	float: none !important;' +
```

```
                        '    font-size: 90%;' +
                        '    font-family: Arial, Helvetica, sans-serif !important;' +
                        '    font-weight: normal !important;' +
                        '    left:auto;' +
                        '    line-height: 2ex !important;' +
                        '    letter-spacing:0;' +
                        '    margin: 0 !important;' +
                        '    outline:none !important;' +
                        '    padding: 0 !important;' +
                        '    text-decoration: none !important;' +
                        '        text-transform: none !important;' +
                        '    text-shadow:none !important;' +
                        '    vertical-align:middle !important;' +
                        '    white-space:nowrap !important;' +
                        '    z-index: 2147483647 !important;' +
                        '    zoom: 1;' +
                        '}' +
                        ' div#' + IconVodafoneContainerId + ' td {' +
                        '    text-align: left !important;' +
                        '}' +
                        ' div#' + IconVodafoneContainerId  + ' {' +
                        '    bottom       : 0;' +
                        '    clear        : both !important;' +
                        '    margin-bottom: 10px !important;' +
                        //inigo'    margin-right : 13px !important;' +
                        //                '    position     : absolute !important;' +
                        //'    width        : 100% !important;' +
                        '}' +
                        ' div#' + IconVodafoneButtonBarId + ', div#' +
adcontrolstatusId + ' {' +
                        '    bottom       : 0;' +
                        '    clear        : both !important;' +
                        '    margin-bottom: 0px !important;' +
                        '    margin-right : 13px !important;' +
                        //                '    position     : absolute !important;' +
                        '    width        : 96% !important;' +
                        '}' +
                        ' div#' + IconVodafoneContainerId + '  button {' +
                        '    cursor              : pointer' +
                        '    display             : inline !important;' +
                        '    margin              : 10px 2px !important;' +
                        '    padding             : 5px 10px !important;' +
                        '}' +
                        ' div#' + IconVodafoneContainerId + '  button img {' +
                        '    margin              : 0 5px 0 0 !important;' +
                        '}' +
                        ' div#' + IconVodafoneContainerId + '  button span {' +
                        '    font-size           : 1.8em;' +
                        '    font-weight         : bold !important;' +
                        '    line-height         : 1em !important;' +
                        '}' +
                        ' div#' + IconVodafoneContainerId + ' .' +
IconVodafoneBoxGrayClass + ' {' +
```

```
                        '    background          : -moz-linear-gradient(top, #FDFDFD
0%, #E9E9E9 100%) !important;' +
                        '    background          : -webkit-gradient(linear, left top, left
bottom, color-stop(0%,#FDFDFD), color-stop(100%,#E9E9E9)) !important;' +
                        '    background          : -webkit-linear-gradient(top, #FDFDFD
0%,#E9E9E9 100%) !important;' +
                        '    background          : -o-linear-gradient(top, #FDFDFD
0%,#E9E9E9 100%) !important;' +
                        '    background          : -ms-linear-gradient(top, #FDFDFD
0%,#E9E9E9 100%) !important;' +
                        '    background          : linear-gradient(top, #FDFDFD
0%,#E9E9E9 100%) !important;' +
                        '    filter              :
progid:DXImageTransform.Microsoft.gradient(startColorstr="#FDFDFD",
endColorstr="#E9E9E9",GradientType=0) !important;' +
                        '    border              : #AFAFAF solid 1px !important;' +
                        '    -moz-border-radius   : 3px;' +
                        '    -ms-border-radius    : 3px;' +
                        '    -o-border-radius     : 3px;' +
                        '    -webkit-border-radius: 3px;' +
                        '    border-radius        : 3px;' +
                        '    color               : black;' +
                        '    font-weight          : bold !important;' +
                        '    width               : 95%  !important;' +
                        '    text-align           : center !important;' +
                        '}' +
                        ' div#' + IconVodafonePanelId + ', div#' +
IconVodafonePanel2Id + ' {' +
                        '    background-repeat: repeat-x !important;' +
                        '    background-position: 0 100% !important;' +
                        '    background-color: #ffffff !important;' +
                        '    -moz-box-sizing: content-box;' +
                        '    -moz-box-shadow:    0 5px 5px 5px #ccc;' +
                        '    -ms-box-shadow:     0 5px 5px 5px #ccc;' +
                        '    -o-box-shadow:      0 5px 5px 5px #ccc;' +
                        '    -webkit-box-shadow: 0 5px 5px 5px #ccc;' +
                        '    text-shadow: 0 1px 0 rgba(255, 255, 255, .8);' +
                        '    -moz-border-radius-bottomright: 5px;' +
                        '    -moz-border-radius-bottomleft: 5px;' +
                        '    -ms-border-radius-bottomright: 5px;' +
                        '    -ms-border-radius-bottomleft: 5px;' +
                        '    -o-border-radius-bottomright: 5px;' +
                        '    -o-border-radius-bottomleft: 5px;' +
                        '    -webkit-border-radius-bottomright: 5px;' +
                        '    -webkit-border-radius-bottomleft: 5px;' +
                        '    color: #999999;' +
                        '    display: none;' +
                        '    overflow: hidden !important;' +
                        '    position: relative !important;' +
                        '    white-space: nowrap !important;' +
                        '    width: 100%;' +
                        '    height: auto;' +
                        '}' +
```

```
                        ' div#' + IconVodafoneWholeId + ', div#' +
IconVodafonePanel2Id + ' {' +
                        '    text-align: left !important;' +
                        '}' +
                        ' div#' + IconVodafonePanelId + ', div#' +
IconVodafonePanel2Id + ' div.' + IconVodafonePanelLeftId + ', div#' +
IconVodafonePanelId + ' {' +
                        '    overflow-x:hidden !important;' +
                        '    overflow-y:auto !important;' +
                        '    position: absolute;' +
                        '    top: 0px !important;' +
                        '    width: 100% !important;' +
                        '    white-space:nowrap;' +
                        '}' +
                        ' div#' + IconVodafonePanelId + ', div#' +
IconVodafonePanel2Id + ' .' + IconVodafonePanelLeftClass + ' {' +
                        '    left: 0 !important;' +
                        '}' +
                        ' div#' + IconVodafoneContainerId + ' div#' +
IconVodafoneRedId + ' {' +
                        '    overflow:visible !important;' +
                        '    cursor: pointer' +
                        '}' +
                        ' img#' + iconbarimageId + ', img#' + iconbariconId + ',
img#' + iconbarbgId + ' {' +
                        '    box-shadow : none !important;' +
                        '    display    : inline !important;' +
                        '}' +
                        ' div#' + IconVodafoneContainerId + ' span {' +
                        '       white-space: -moz-pre-wrap !important;' +  /* Mozilla,
since 1999 */
                        '       white-space: -pre-wrap !important;' +      /* Opera 4-6 */
                        '       white-space: -o-pre-wrap !important;' +    /* Opera 7 */
                        '       white-space: pre-wrap !important;' +       /* css-3 */
                        '       word-wrap: break-word !important;' +       /* Internet
Explorer 5.5+ */
                        '       white-space: normal !important;' +
                        '}' +
                        ' img#' + iconCBimage + ' {' +
                        '    box-shadow : none !important;' +
                        '    display    : inline !important;' +
                        '}' +
                        ' img#' + adcontrolimage + ' {' +
                        '    box-shadow : none !important;' +
                        '    display    : inline !important;' +
                        '}' +
                        ' img#' + iconChevronImage + ' {' +
                        '    box-shadow : none !important;' +
                        '    display    : inline !important;' +
                        '}' +
                        ' svg { ' +
                        '       display         : inline !important;' +
                        '}' +
                        '</style>'
```

```
                    );

                    var closeIcon = '<?xml version="1.0" encoding="UTF-8"
standalone="no"?>' +
                                        '<svg width="24px" height="24px"
viewBox="0 0 24 24" version="1.1" xmlns="http://www.w3.org/2000/svg"
xmlns:xlink="http://www.w3.org/1999/xlink">' +
                                        '      <!-- Generator: Sketch 41.2 (35397) -
http://www.bohemiancoding.com/sketch -->' +
                                        '      <title>ic_close_24</title>' +
                                        '      <desc>Created with Sketch.</desc>' +
                                        '      <defs/>' +
                                        '      <g id="Page-1" stroke="none" stroke-
width="1" fill="none" fill-rule="evenodd">' +
                                        '            <g id="web_companion"
transform="translate(-316.000000, -93.000000)">' +
                                        '                  <g id="Group"
transform="translate(10.000000, 81.000000)">' +
                                        '                        <g id="close-r:10"
transform="translate(306.000000, 12.000000)">' +
                                        '                              <g id="ICON-/-
CLOSE">' +
                                        '                                    <rect
id="Rectangle-path" x="0" y="0" width="24" height="24"/>' +
                                        '                                    <path
d="M3.14644661,3.85355339 L20.1464466,20.8535534
C20.3417088,21.0488155 20.6582912,21.0488155 20.8535534,20.8535534
C21.0488155,20.6582912 21.0488155,20.3417088 20.8535534,20.1464466
L3.85355339,3.14644661 C3.65829124,2.95118446 3.34170876,2.95118446
3.14644661,3.14644661 C2.95118446,3.34170876 2.95118446,3.65829124
3.14644661,3.85355339 Z" id="c33595e8-181e-4076-a9f0-227b8fdd48ef"
fill="#757575"/>' +
                                        '                                    <path
d="M3.85355339,20.8535534 L20.8535534,3.85355339
C21.0488155,3.65829124 21.0488155,3.34170876 20.8535534,3.14644661
C20.6582912,2.95118446 20.3417088,2.95118446 20.1464466,3.14644661
L3.14644661,20.1464466 C2.95118446,20.3417088 2.95118446,20.6582912
3.14644661,20.8535534 C3.34170876,21.0488155 3.65829124,21.0488155
3.85355339,20.8535534 Z" id="56502c87-b986-44ba-a730-3fc53d646431"
fill="#757575"/>' +
                                        '                              </g>' +
                                        '                        </g>' +
                                        '                  </g>' +
                                        '            </g>' +
                                        '      </g>' +
                                        '</svg>';

                    var configIcon = '<?xml version="1.0" encoding="UTF-8"
standalone="no"?>' +
                                              '<svg width="32px" height="32px"
viewBox="0 0 32 32" version="1.1" xmlns="http://www.w3.org/2000/svg"
xmlns:xlink="http://www.w3.org/1999/xlink">' +
                                              '      <!-- Generator: Sketch 41.2
(35397) - http://www.bohemiancoding.com/sketch -->' +
```

'	<title>ic_settings_32</title>' +
'	<desc>Created with Sketch.</desc>' +
'	<defs/>' +
'	<g id="Page-1" stroke="none" stroke-width="1" fill="none" fill-rule="evenodd">' +
'		<g id="web_companion" transform="translate(-20.000000, -287.000000)">' +
'		<g id="Group" transform="translate(10.000000, 271.000000)">' +
'		<g id="I:10" transform="translate(10.000000, 16.000000)">' +
'		<g id="ICON-/-SETTINGS">' +
'		<rect id="Rectangle-path" x="0" y="0" width="32" height="32"/>' +
'		<path d="M25.0922838,25.7300764 C25.4087752,25.9135711 25.8140128,25.8077373 26.0003621,25.4929183 L29.1770288,20.1262516 C29.3657527,19.8074211 29.2583115,19.3958756 28.9378211,19.2099844 L26.156838,17.5969561 C26.3135826,16.608978 26.3229272,15.6031727 26.1845586,14.6124367 L28.9955465,13.018232 C29.317851,12.8354424 29.4292652,12.4249103 29.2435891,12.10426 L26.1185891,6.70759332 C25.9352812,6.3910328 25.5311287,6.28130771 25.2128999,6.46170387 L22.4241487,8.04257901 C21.6284367,7.40948084 20.7436101,6.89728752 19.7983333,6.52258634 L19.7983333,3.33333333 C19.7983333,2.9651435 19.4998565,2.66666667 19.1316667,2.66666667 L12.8466667,2.66666667 C12.4784768,2.66666667 12.18,2.9651435 12.18,3.33333333 L12.18,6.50897613 C11.248259,6.87422091 10.3745571,7.37305083 9.58638216,7.98977895 L6.85114998,6.4033152 C6.53485808,6.21986253 6.12982362,6.32540673 5.94328365,6.63988772 L2.75995032,12.0065544 C2.57070405,12.3255978 2.67828047,12.7377588 2.99930915,12.9236175 L5.7642473,14.5243712 C5.61879259,15.505883 5.61859908,16.5034848 5.76366676,17.4850394 L3.00388892,19.0537552 C2.68198339,19.2367331 2.5708621,19.6469762 2.75641094,19.9674067 L5.88141094,25.3640733 C6.06445055,25.6801705 6.46777068,25.790116 6.78590426,25.6106391 L9.59733148,24.024556 C10.3844729,24.6394252 11.2566947,25.1368051 12.1866667,25.5011295 L12.1866667,28.6666667 C12.1866667,29.0348565 12.4851435,29.3333333 12.8533333,29.3333333 L19.1383333,29.3333333 C19.5065232,29.3333333 19.805,29.0348565 19.805,28.6666667 L19.805,25.5816277 C20.8259962,25.3588124 21.7892011,24.9233752 22.6314258,24.3033253 L25.0922838,25.7300764 Z M13.52,28 L13.52,25.035 C13.52,24.7492586 13.3379031,24.495292 13.0672749,24.4035941 C11.9795327,24.0350304 10.9724865,23.4614565 10.1006059,22.7138961 C9.8877114,22.5313579 9.5833438,22.501567 9.33909574,22.6393609 L6.70491462,24.1254496 L4.24701409,19.8808192 L6.82944442,18.4129115 C7.07880611,18.271169 7.20955322,17.9858156 7.15407994,17.7043997 C6.93309905,16.583364 6.93309905,15.4299694 7.15407994,14.3089336 C7.20917764,14.029423 7.08057485,13.745789 6.83402418,13.6030491 L4.25044785,12.1072944 L6.75325052,7.88790983 L9.31718335,9.37501813 C9.5626087,9.51736744 9.87124069,9.48878871 10.0863546,9.30379432 C10.9598685,8.55258705 11.9696568,7.97631766 13.0607436,7.60636006 C13.3313023,7.51462099 13.5133333,7.26068885 13.5133333,6.975 L13.5133333,4 L18.465,4 L18.465,6.98666667 C18.465,7.27136307

```
18.6457885,7.52464335 18.915035,7.61715472 C20.0172453,7.99586705
21.0354078,8.58505217 21.9129661,9.3519823 C22.1262459,9.53837527
22.4340217,9.56964762 22.6804335,9.42996279 L25.2957669,7.94739396
L27.7526578,12.1902808 L25.1227868,13.681768 C24.8748619,13.8223745
24.7437476,14.1050396 24.7965322,14.3851303 C25.009532,15.5153702
24.9984792,16.67644 24.7640013,17.8024201 C24.7054271,18.083698
24.8336474,18.3708621 25.0821789,18.5150156 L27.6870302,20.0258838
L25.1894989,24.2452178 L22.9093829,22.923257 C22.6665204,22.7824507
22.3614728,22.8088711 22.1464359,22.9893365 C21.2636989,23.7301557
20.1894978,24.206305 19.0477743,24.362846 C18.7176678,24.4081067
18.4716667,24.6901384 18.4716667,25.0233333 L18.4716667,28 L13.52,28 Z
M21.3219224,15.6533157 C21.1477839,12.9810182 19.0189818,10.8522161
16.3466843,10.6780776 C14.1309295,10.5336895 12.0575363,11.7772317
11.141521,13.7999361 C10.2255057,15.8226405 10.6585424,18.2012611
12.2286406,19.7713594 C13.7987389,21.3414576 16.1773595,21.7744943
18.2000639,20.858479 C20.2227683,19.9424637 21.4663105,17.8690705
21.3219224,15.6533157 Z M17.6500171,19.6438901 C16.1329888,20.3309015
14.3490234,20.006124 13.1714497,18.8285503 C11.993876,17.6509766
11.6690985,15.8670112 12.3561099,14.3499829 C13.0431214,12.8329546
14.5981663,11.9002979 16.2599824,12.008589 C18.2642055,12.1391929
19.8608071,13.7357945 19.991411,15.7400176 C20.0997021,17.4018337
19.1670454,18.9568786 17.6500171,19.6438901 Z" id="Combined-Shape"
fill="#757575"/>' +
                                                '                                </g>' +
                                                '                            </g>' +
                                                '                        </g>' +
                                                '                    </g>' +
                                                '            </g>' +
                                                '</svg>';

                    var chevronIcon = '<?xml version="1.0" encoding="UTF-8"
standalone="no"?>' +
                                                '<svg width="24px" height="24px"
viewBox="0 0 24 24" version="1.1" xmlns="http://www.w3.org/2000/svg"
xmlns:xlink="http://www.w3.org/1999/xlink">' +
                                                '    <!-- Generator: Sketch 41.2
(35397) - http://www.bohemiancoding.com/sketch -->' +
                                                '    <title>ic_chevron_24</title>' +
                                                '    <desc>Created with
Sketch.</desc>' +
                                                '    <defs/>' +
                                                '    <g id="Symbols" stroke="none"
stroke-width="1" fill="none" fill-rule="evenodd">' +
                                                '            <g id="ICON-/-CHEVRON-
RIGHT">' +
                                                '                <g id="Group-2">' +
                                                '                        <rect
id="Rectangle-path" transform="translate(12.000000, 12.000000) rotate(-
90.000000) translate(-12.000000, -12.000000) " x="0" y="0" width="24"
height="24"/>' +
                                                '                        <polyline
id="259e14f8-3d8b-4ae1-b945-69f9c598b490" stroke="#757575" stroke-
linecap="round" stroke-linejoin="round" points="7.75 3.5 16.25 12 7.75 20.5"/>'
+
```

```
                                                    '                    </g>' +
                                                    '              </g>' +
                                                    '       </g>' +
                                                    '</svg>';

                    dom.jquery('body').prepend('<div id="' +
IconVodafoneContainerId + '" style="position:absolute;top:0px;left:0px;z-
index:2147483647;display:block;min-height:5px;direction:ltr;-webkit-transform:
translate3d(0, 0, 0);">'  +
                        '<div id="' + IconVodafoneWholeId + '">'  +
                    '<div id="' + IconVodafoneRedId + '"   style="background:
#E60000 !important;"></div>'  +
                    '<div id="' + iconbarId + '" style="cursor: pointer; position:
absolute; top: 0px !important;">'  +
                        '<div id="' + iconbarbgId + '" style="max-width:none !
important; position: absolute; top: 0px !important;" />'  +
                    '<div id="' + iconbarimageId + '" style="max-width:none !
important; position: absolute; top: 0px !important;" />'  +
                    '</div></div>'  +
                    '<div id="' + IconVodafonePanelId + '" style="height: auto; -
moz-box-sizing: content-box !important;">'  +
                    '<div id="' + IconVodafonePanelLinksId + '" style="margin-
right: 13px !important; width: 96% !important;">'  +
                    '<div class="' + IconVodafonePanelLeftClass + '" id="' +
IconVodafonePanelLeftId + '">'  +
                        '<div id="' + IconVodafonePopularId + '">'  +
                    '<div style="margin-left: 10px ! important; padding-top: 7px !
important; ">'  +

                        '<div style="display:inline-block !important; float:left !
important">'  +
                                '<div id="' + iconbariconId + '" style="display: inline;
width: 64px; height: 64px;" />' +
                                '<span style="font-size: 20px !important; font-weight:
bold !important; padding-left:10px !important; letter-spacing: 0.14px; color:
#313131 !important;">'  +
                                overlayText.header + '</span>'  +
                        '</div>' +

                        '<div style="width: 24px; height:24px; display:inline !
important; float:right !important; padding-top:3px !important">' +
                                closeIcon +
                        '</div>' +
                        '<div style="float: clear !important;"></div>' +
                    '</div>'  +
                    '<div id="' + IconVodafoneTabId + '" style="float:left !
important; display:block !important;background: none repeat scroll 0px 0px
#EBEBEB ! important; cursor: auto; height: 1px !important; margin-top: 8px !
important; width: 100% ! important; margin-left: 0px !important;">'  +
                    '</div>'  +
                    '</div>'  +
                    '</div>'  +
                    '</div>'  +
                    '</div>'  +
```

```
                    '<div id="' + IconVodafonePanel2Id + '" style="-moz-box-
sizing: content-box !important;">'  +
                    '<div id="' + IconMainHeaderIconId + '" style="min-height:
60px important!; padding-top: 14px ! important; z-index: 1;  padding-bottom:
15px !important; padding-left: 10px !important;">'  +
                    '<span style="font-size: 16px !important; color:#333333 !
important; letter-spacing: 0.11px !important;">'  +
                    overlayText.protectionLevelTitle + '</span>'  +
                    '<span id="' + protectionlevelId + '" style="font-size: 16px !
important;color:#333333 !important;letter-spacing: 0.11px
!important;"></span>'  +
                    '<table id="' + IconVodafoneProtectionLevelTableId + '"
cellspacing="0" style="width:100% !important" width="100%">'  +
                    '<tr><td colspan="5" style="padding-bottom: 10px !
important;">'  +
                    '<tr style="display:table-row;">'  +
                    '<td width="5%" id="' + lowId + '" style="display:table-cell;
border-top-left-radius: 2px; border-bottom-left-radius: 2px;"> </td>'  +
                    '<td width="40%" id="' + mediumId + '" style="display:table-
cell;"> </td>'  +
                    '<td width="45%" id="' + strongId + '" style="display:table-
cell;border-top-right-radius: 2px; border-bottom-right-radius:
2px;"> </td>'  +
                    '<td width="5%" id="' + finId + '" style="display:table-
cell;"> </td>'  +
                    '</tr>'  +
                    '</table>'  +
                    '</div>'  +
                      '<div id="' + IconVodafoneTabIdHM + '" style="float:left !
important; display:block !important;background: none repeat scroll 0px 0px
#EBEBEB ! important; cursor: auto; height: 1px !important; margin-top: 0px !
important; width: 100% ! important; margin-left: 0px !important;">'  +
                      '</div>' +

                      '<div style="min-height: 62px !important; min-height:78px !
important; padding-top: 11px ! important; z-index: 1; padding-left: 10px !
important; padding-right:10px !important;" id="' + explanationTextId + '">' +
                      '<span style="font-size: 16px !important;color: #333333 !
important; letter-spacing: 0.11px !important;">' +
overlayText.explanationTextHeader + '</span>' +
                      '</br>' + '</br>' +
                      '<span style="font-size: 14px !important; color: #666666 !
important; letter-spacing: 0.1px !important; line-height: 18px !important;">' +
overlayText.explanationTextBody + '</span>' +
                      '</div>' +

                      '<div id="' + IconVodafoneButtonBarId + '" style="min-
height: 64px !important; padding-left: 10px !important; padding-top: 16px !
important; padding-bottom: 16px !important; ">'  +
                      '<div style="display:inline-block !important; float: left !
important;">' +
                      '<div id="' + iconCBimage + '" style="display: inline; width:
32px; height: 32px; text-align: left;"></div>' +
```

```
                        '<span '+ '" id="' + IconVodafoneStatsId + '" style="font-
size: 16px !important; padding-left: 10px !important; color: #333333 !important;
letter-spacing: 0.11px !important; width: 244px !important;">' +
overlayText.settingsButton + '</span>'  +
                        '</div>' +
                        '<div id="' + iconChevronImage + '" style="display: inline;
width: 24px; height: 24px; padding-top: 4px !important; float: right !important;
cursor: pointer !important;"></div>' +
                        '</div>' +

                        '<div id="' + adcontrolstatusId + '" style="min-height: 64px
important!; padding-left: 10px !important; padding-top: 16px !important;
padding-bottom: 23px !important; ">'  +
                        '<div id="' + adcontrolimage + '" style="display: inline;
width: 32px; height: 32px; text-align: left;"></div>' +
                        '<span '+ '" id="' + adcontrolstatustextId + '" style="font-
size: 16px !important; padding-left: 10px !important; color: #333333 !important;
letter-spacing: 0.11px !important; display: inline-block !important; width: 244px !
important;">' + overlayText.adcontrolStatusUndef + '</span>'  +
                        '<br />' +
                        '<a id="' + adcontrollinkId + '" href="#" style="font-size:
14px !important; color:#666666 !important; letter-spacing: 0.1px !important;
line-height: 18px !important; padding-left: 40px !important; text-decoration:
underline !important;">' + overlayText.adcontrolLinkTextUndef + '</a>' +
                        '</div>' +

                        '<div id="' + adcontrolstatsId + '" style="padding-top:
10px !important; z-index: 1;  padding-bottom: 10px !important; padding-left:
10px !important;">' +
                      '<span id="' + adcontrolstatstextId + '" style="font-size:
1.4em !important; color:#000000 !important; padding-top: 20px !important;
padding-left: 10px !important;">'  +
                        overlayText.adcontrolBlockedBanners + '</span>' +
                        '<span id="' + adcontrolnumberblockedbannersId + '"
style="font-size: 1.4em !important; color:#000000 !important; padding-top:
20px !important; font-weight: bold !important;">'  +
                        '</span><br>' +
                        '<a id="' + adcontrolstatslinkId + '" style="font-size:
1.4em !important; color:#000000 !important;text-decoration: underline !
important;font-style:italic !important;" href="#" onclick="location.reload(true);
return false;">' + overlayText.blockedBannersTimeoutWarning + '</a>' +
                        '<br />' + '<br />' +
                        '</div>' +

                      /*'<div id="' + IconVodafoneTabId + '" style="background:
#FFFFFF !important;"></div>'  +
                      '<div id="' + IconVodafoneTabLineId + '" style="background:
none repeat scroll 0 0 #666666 !important; cursor: auto; height: 1px ! important;
margin-top: 1px ! important; width: 12px ! important; margin-left: 5px !
important; cursor: pointer;"></div>'  +
                      '<div id="' + IconVodafoneGreyFullId + '" style="background:
none repeat scroll 0 0 #AFAFAF !important; cursor: auto; height: 4px ! important;
margin-top: 2px ! important; width: 100% ! important; margin-left: 0px !
important; cursor: pointer;"></div>' +
```

```
                    '</div>'  +*/
                    '</div>'
                );

                if( !showExplanationTextModule ) {
                        dom.jquery('#' + explanationTextId).hide();
                }

                if( showConfigButtonModule ){
                        dom.jquery("#" + iconCBimage).append(configIcon);
                        dom.jquery("#" + iconCBimage + " svg").css("width",
"32px").css("height", "32px");
                        dom.jquery("#" + iconChevronImage).append(chevronIcon);
                        dom.jquery("#" + iconChevronImage + " svg").css("width",
"24px").css("height", "24px");

                } else {
                        dom.jquery('#' + IconVodafoneButtonBarId).hide();
                }

                if( !showAdManagementModule ) {
                        dom.jquery('#' + adcontrolstatusId).hide();
                }

                // Redmine #37468: Force left alignment of "Vodafone Secure
Net" header just for non-rtl webpages.
                /*if(dom.jquery("body").css("direction") != "rtl")
                        dom.jquery("#" + IconVodafonePopularId + " *").css("text-
align", "left", "important");*/

                // Make the icon draggable
                dom.jquery("#" + iconbarId).drags();

                // Definition of SVG format of images
                                        var redIconUnfolded = '<?xml
version="1.0" encoding="UTF-8"?>' +
                                                                                '<s
vg width="111px" height="111px" viewBox="0 0 111 111" version="1.1"
xmlns="http://www.w3.org/2000/svg"
xmlns:xlink="http://www.w3.org/1999/xlink">' +
                                                                                '<t
itle>logo_unfolded_new</title>' +
                                                                                '
        <g id="logo_unfolded_new" stroke="none" stroke-width="1" fill="none"
fill-rule="evenodd">' +
                                                                                '
                <g id="shield" transform="translate(5.000000, 6.000000)" fill-
rule="nonzero">' +
                                                                                '
                        <path d="M48.1661582,4.10276836
C21.529548,20.7649153 5.13559322,6.17983051 5.13559322,14.5166102
C5.13559322,71.0594915 42.0376836,90.0840113 49.0734463,93.1938983
C49.8011327,93.5114867 50.6282459,93.5114867 51.3559322,93.1938983
C58.3859887,90.0840113 95.2937853,71.0594915 95.2937853,14.5166102
```

```
C95.2937853,6.15700565 78.8998305,20.7934463 52.2632203,4.10276836
C51.0100045,3.31892931 49.4193741,3.31892931 48.1661582,4.10276836 Z"
id="Shape" fill="#E60000"></path>' +
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                
                        <path d="M50.2146893,3.50912717
C49.4919095,3.5041407 48.7821731,3.70183886 48.1661582,4.0799435
C21.529548,20.7649153 5.13559322,6.17983051 5.13559322,14.5166102
C5.13559322,71.0594915 42.0376836,90.0840113 49.0734463,93.1938983
C49.4328847,93.3534664 49.82143,93.4370037 50.2146893,93.4392655
L50.2146893,3.50912717 Z" id="Shape" fill="#B20000"></path>' +
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                
                        <path d="M48.1661582,5.23830508
C49.4201536,4.45718696 51.009225,4.45718696 52.2632203,5.23830508
C78.5745763,21.6836158 94.8829379,7.6520339 95.2937853,15.3554237
C95.2937853,15.0758192 95.2937853,14.7848023 95.2937853,14.510904
C95.2937853,6.15129944 78.8998305,20.7877401 52.2632203,4.09706215
C51.009225,3.31594402 49.4201536,3.31594402 48.1661582,4.09706215
C21.529548,20.7649153 5.13559322,6.17983051 5.13559322,14.5166102
C5.13559322,14.8019209 5.13559322,15.0872316 5.13559322,15.3611299
C5.54644068,7.68056497 21.8605085,21.6836158 48.1661582,5.23830508 Z"
id="Shape" fill="#FFFFFF" opacity="0.2"></path>' +
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                
                        <path d="M51.3559322,92.0526554
C50.6282459,92.3702437 49.8011327,92.3702437 49.0734463,92.0526554
C42.0776271,88.9541808 5.52361582,70.1065537 5.13559322,14.2655367
C5.13559322,14.3568362 5.13559322,14.4481356 5.13559322,14.539435
C5.13559322,71.0823164 42.0376836,90.1068362 49.0734463,93.2167232
C49.8011327,93.5343115 50.6282459,93.5343115 51.3559322,93.2167232
C58.3859887,90.1068362 95.2937853,71.0823164 95.2937853,14.539435
C95.2937853,14.4424294 95.2937853,14.3511299 95.2937853,14.2655367
C94.9114689,70.1065537 58.3574576,88.9541808 51.3559322,92.0526554 Z"
id="Shape" fill="#1D1D1B" opacity="0.2"></path>' +
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                
                  </g>' +
                                                                                                                                                                                                                                                                                                                                                
         </g>' +
                                                                                                                                                                                                                                                                                                                                                
'</
svg>';

                                                var redIconFolded = '<?xml version="1.0"
encoding="UTF-8"?>' +
                                                                                                                                                                                                                                                                                                                                                
'<s
vg width="115px" height="113px" viewBox="0 0 115 113" version="1.1"
xmlns="http://www.w3.org/2000/svg"
xmlns:xlink="http://www.w3.org/1999/xlink">' +
                                                                                                                                                                                                                                                                                                                                                
<title>logo_folded_new</title>' +
                                                                                                                                                                                                                                                                                                                                                
<g id="logo_folded_new" stroke="none" stroke-width="1" fill="none" fill-
rule="evenodd">' +
                                                                                                                                                                                                                                                                                                                                                
<g id="Shape">' +
                                                                                                                                                                                                                                                                                                                                                
<path d="M0,0 L115,0 L115,56 C115,86.927946 89.927946,112 59,112 L56,112
```

```
C25.072054,112 3.78758101e-15,86.927946 0,56 L0,0 L0,0 Z" id="Fill"
fill="#FFFFFF"></path>' +
                                                                      '
<path d="M115,0 L115,56 C115,86.927946 89.927946,112 59,112 L56,112
C25.072054,112 0,86.927946 0,56 L0,0 L115,0 Z M113,2 L2,2 L2,56
C2,85.5251427 25.6955087,109.515903 55.1070113,109.992766 L56,110
L59,110 C88.5251427,110 112.515903,86.3044913 112.992766,56.8929887
L113,56 L113,2 Z" id="Outline" fill="#979797" fill-rule="nonzero"></path>' +
                                                                      '
<polygon id="Red-Stroke" fill="#E60000" fill-rule="nonzero" points="115 0 115
5 0 5 0 0"></polygon>' +
                                                                      '
</g>' +
                                                                      '
<g id="shield" transform="translate(16.000000, 15.000000)" fill-
rule="nonzero">' +
                                                                      '
<path d="M39.5820904,3.37158192 C17.6925989,17.0642373
4.22033898,5.07847458 4.22033898,11.9294915 C4.22033898,58.3954237
34.5458192,74.029435 40.3276836,76.5850847 C40.9256833,76.8460732
41.6053902,76.8460732 42.2033898,76.5850847 C47.980565,74.029435
78.3107345,58.3954237 78.3107345,11.9294915 C78.3107345,5.05971751
64.8384746,17.0876836 42.9489831,3.37158192 C41.9191126,2.72743695
40.6119609,2.72743695 39.5820904,3.37158192 Z" id="Shape"
fill="#E60000"></path>' +
                                                                      '
<path d="M41.2655367,2.88373817 C40.6715692,2.87964037
40.0883205,3.0421052 39.5820904,3.35282486 C17.6925989,17.0642373
4.22033898,5.07847458 4.22033898,11.9294915 C4.22033898,58.3954237
34.5458192,74.029435 40.3276836,76.5850847 C40.6230637,76.716215
40.9423633,76.7848644 41.2655367,76.7867232 L41.2655367,2.88373817 Z"
id="Shape" fill="#B20000"></path>' +
                                                                      '
<path d="M39.5820904,4.30474576 C40.6126014,3.66283681
41.918472,3.66283681 42.9489831,4.30474576 C64.5711864,17.819209
77.9731073,6.28830508 78.3107345,12.6188136 C78.3107345,12.3890395
78.3107345,12.149887 78.3107345,11.9248023 C78.3107345,5.05502825
64.8384746,17.0829944 42.9489831,3.36689266 C41.918472,2.7249837
40.6126014,2.7249837 39.5820904,3.36689266 C17.6925989,17.0642373
4.22033898,5.07847458 4.22033898,11.9294915 C4.22033898,12.1639548
4.22033898,12.3984181 4.22033898,12.6235028 C4.5579661,6.31175141
17.9645763,17.819209 39.5820904,4.30474576 Z" id="Shape" fill="#FFFFFF"
opacity="0.2"></path>' +
                                                                      '
<path d="M42.2033898,75.6472316 C41.6053902,75.9082201
40.9256833,75.9082201 40.3276836,75.6472316 C34.5786441,73.1009605
4.53920904,57.6123164 4.22033898,11.7231638 C4.22033898,11.7981921
4.22033898,11.8732203 4.22033898,11.9482486 C4.22033898,58.4141808
34.5458192,74.0481921 40.3276836,76.6038418 C40.9256833,76.8648303
41.6053902,76.8648303 42.2033898,76.6038418 C47.980565,74.0481921
78.3107345,58.4141808 78.3107345,11.9482486 C78.3107345,11.8685311
78.3107345,11.7935028 78.3107345,11.7231638 C77.9965537,57.6123164
47.9571186,73.1009605 42.2033898,75.6472316 Z" id="Shape" fill="#1D1D1B"
opacity="0.2"></path>' +
```

```
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                
'
</g>' +
'
</g>' +
'</
svg>';

var adControlIcon = '<?xml version="1.0" encoding="utf-8"?>' +
'<svg width="32px" height="33px"
viewBox="0 0 32 33" version="1.1" xmlns="http://www.w3.org/2000/svg"
xmlns:xlink="http://www.w3.org/1999/xlink">' +
'<!-- Generator: Sketch 41.2 (35397) -
http://www.bohemiancoding.com/sketch -->' +
'	<title>ic_block</title>' +
'	<desc>Created with
Sketch.</desc>' +
'	<defs/>' +
'	<g id="Page-1" stroke="none"
stroke-width="1" fill="none" fill-rule="evenodd">' +
'		<g id="web_companion"
transform="translate(-20.000000, -364.000000)">' +
'		<g id="Group"
transform="translate(10.000000, 335.000000)">' +
'		<g id="block-l:10"
transform="translate(10.000000, 29.500000)">' +
'		<g id="ICON-/-
BLOCK">' +
'		<g>' +
'		<rect
id="Rectangle-path-@fullwidth-@fullheight" x="0" y="0" width="32"
height="32"/>' +
'		<g
id="Group-2" transform="translate(2.000000, 2.000000)" fill="#757575">' +
'		<path
d="M14,27.3333333 C21.3637967,27.3333333 27.3333333,21.3637967
27.3333333,14 C27.3333333,6.63620334 21.3637967,0.666666667
14,0.666666667 C6.63620334,0.666666667 0.666666667,6.63620334
0.666666667,14 C0.666666667,21.3637967 6.63620334,27.3333333
14,27.3333333 Z M14,26 C7.372583,26 2,20.627417 2,14 C2,7.372583
7.372583,2 14,2 C20.627417,2 26,7.372583 26,14 C26,20.627417 20.627417,26
14,26 Z" id="Combined-Shape"/>' +
'		<polygon
id="Shape" points="5.51473785 23.4280712 23.4280712 5.51473785
22.4852621 4.57192881 4.57192881 22.4852621"/>' +
'
</g>' +
'		</g>' +
'		</g>' +
'		</g>' +
'		</g>' +
'		</g>' +
'	</g>' +
'</svg>';
```

```
		// Append images to corresponding divs and set SVGs width and
height
		dom.jquery("#" + iconbarimageId).append(redIconFolded);
		dom.jquery("#" + iconbarbgId + " svg, #" + iconbarimageId + "
svg, #" + iconbarId).css("width",  "48px").css("height", "48px");
		dom.jquery("#" + iconbariconId).append(redIconUnfolded);
		dom.jquery("#" + iconbariconId + " svg").css("width",
"32px").css("height", "32px");

		// Tunning icon's width and height
		dom.jquery("#" + IconVodafoneRedId).css('height','200%');
		if((dom.jquery("#" + IconVodafoneRedId).css('height') == "0px")
|| (parseInt(dom.jquery("#" + IconVodafoneRedId).css('height')) > 2))
			dom.jquery("#" + IconVodafoneRedId).css('height',   '2px');

		// Redmine #37487: Determining icon width and height
depending on the configuration variables
		var iconSizeFactor;
		if((typeof iconSizeScreenPercentage === "undefined") ||
(iconSizeScreenPercentage < 1) || (iconSizeScreenPercentage > 100))
			iconSizeFactor = 100/7;
		else
			iconSizeFactor = 100/iconSizeScreenPercentage;
		var iconSize;
		if(getViewportWidth().width/iconSizeFactor < iconMinSizePx)
			iconSize = iconMinSizePx;
		else if(getViewportWidth().width/iconSizeFactor > iconMaxSizePx)
			iconSize = iconMaxSizePx;
		else
			iconSize = getViewportWidth().width/iconSizeFactor;

		dom.jquery("#" + iconbarimageId + " svg, #" + iconbarbgId + "
svg, #" + iconbarId)
			.css("width",  iconSize)
			.css("height", iconSize);

		dom.jquery("#" + IconVodafoneContainerId).css("width",
getIconContainerWidth() + "px");

		// Get the value of the parameters received from WebFilter
		var policystate, modality, view, uriAd, ui, policystateadsfree,
inadwhitelist, uriMutationRequest, uriAuditRequest;
		if(window.g_icon_parameters) { // Global variable does exist =>
New version of WebFilter
			if(window.g_icon_parameters.hasOwnProperty("policystate"))
				policystate = window.g_icon_parameters.policystate;
			else
				policystate = getURLVarFromScript('policystate');
			if(window.g_icon_parameters.hasOwnProperty("modality"))
				modality = window.g_icon_parameters.modality;
			else
				modality = getURLVarFromScript('modality');
			if(window.g_icon_parameters.hasOwnProperty("view"))
				view = window.g_icon_parameters.view;
```

```
                        else
                                view = getURLVarFromScript('view');
                        if(window.g_icon_parameters.hasOwnProperty("uriAd"))
                                uriAd = window.g_icon_parameters.uriAd;
                        else
                                uriAd = getURLVarFromScript('uriAd');
                        if(window.g_icon_parameters.hasOwnProperty("ui"))
                                ui = window.g_icon_parameters.ui;
                        else
                                ui = getURLVarFromScript("ui");

if(window.g_icon_parameters.hasOwnProperty("policystateadsfree"))
                                policystateadsfree =
window.g_icon_parameters.policystateadsfree;
                        else
                                policystateadsfree =
getURLVarFromScript("policystateadsfree");

if(window.g_icon_parameters.hasOwnProperty("inadwhitelist"))
                                inadwhitelist =
window.g_icon_parameters.inadwhitelist;
                        else
                                inadwhitelist = getURLVarFromScript("inadwhitelist");

if(window.g_icon_parameters.hasOwnProperty("uriMutationRequest"))
                                uriMutationRequest =
window.g_icon_parameters.uriMutationRequest;
                        else
                                uriMutationRequest =
getURLVarFromScript("uriMutationRequest");

if(window.g_icon_parameters.hasOwnProperty("uriAuditRequest"))
                                uriAuditRequest =
window.g_icon_parameters.uriAuditRequest;
                        else
                                uriAuditRequest =
getURLVarFromScript("uriAuditRequest");

if(window.g_icon_parameters.hasOwnProperty("uriObjectBlockedAdsFree"))
                                uriObjectBlockedAdsFree =
window.g_icon_parameters.uriObjectBlockedAdsFree;
                        else
                                uriObjectBlockedAdsFree =
getURLVarFromScript("uriObjectBlockedAdsFree");
                } else { // Global variable does NOT exist => Old version of
WebFilter
                        policystate = getURLVarFromScript('policystate');
                        modality = getURLVarFromScript('modality');
                        view = getURLVarFromScript('view');
                        uriAd = getURLVarFromScript('uriAd');
                        ui = getURLVarFromScript("ui");
                        policystateadsfree =
getURLVarFromScript("policystateadsfree");
                        inadwhitelist = getURLVarFromScript("inadwhitelist");
```

```
                        uriMutationRequest =
getURLVarFromScript("uriMutationRequest");
                        uriAuditRequest = getURLVarFromScript("uriAuditRequest");
                        uriObjectBlockedAdsFree =
getURLVarFromScript("uriObjectBlockedAdsFree");
                }

                // Protection level algorithm decision
        if(considerSSLInspectionForProtectionLevel) {
                        // Set protection level depending on the "policystate"
parameter
                        if(policystate == 259) {
                                dom.jquery("#" +
protectionlevelId).html(overlayText.protectionLevelHigh);
                                dom.jquery("#" + lowId).css('background-color',
'#A8B400');
                                dom.jquery("#" + mediumId).css('background-color',
'#A8B400');
                                dom.jquery("#" + strongId).css('background-color',
'#A8B400');
                        } else if((policystate == 0) || (policystate == 2)) {
                                dom.jquery("#" +
protectionlevelId).html(overlayText.protectionLevelLow);
                                dom.jquery("#" + lowId).css('background-color',
'red');
                                dom.jquery("#" + mediumId).css('background-color',
'grey');
                                dom.jquery("#" + strongId).css('background-color',
'grey');
                                // Set SVG red elements to grey
                                //dom.jquery("#ic_securenet_top path").css("fill",
"#737373");
                        } else {
                                dom.jquery("#" +
protectionlevelId).html(overlayText.protectionLevelMedium);
                                dom.jquery("#" + lowId).css('background-color',
'orange');
                                dom.jquery("#" + mediumId).css('background-color',
'orange');
                                dom.jquery("#" + strongId).css('background-color',
'grey');
                                // Set SVG red elements to grey
                                //dom.jquery("#ic_securenet_top path").css("fill",
"#737373");
                        }
                } else {
                        // Set protection level depending on the "policystate"
parameter
                        if(policystate == 2) {
                                dom.jquery("#" +
protectionlevelId).html(overlayText.protectionLevelHigh);
                                dom.jquery("#" + lowId).css('background-color',
'#A8B400');
```

```
                                dom.jquery("#" + mediumId).css('background-color',
'#A8B400');
                                dom.jquery("#" + strongId).css('background-color',
'#A8B400');
                        } else if(policystate == 1) {
                                dom.jquery("#" +
protectionlevelId).html(overlayText.protectionLevelMedium);
                                dom.jquery("#" + lowId).css('background-color',
'orange');
                                dom.jquery("#" + mediumId).css('background-color',
'orange');
                                dom.jquery("#" + strongId).css('background-color',
'grey');
                                // Set SVG red elements to grey
                                //dom.jquery("#ic_securenet_top path").css("fill",
"#737373");
                        } else {
                                dom.jquery("#" +
protectionlevelId).html(overlayText.protectionLevelLow);
                                dom.jquery("#" + lowId).css('background-color',
'red');
                                dom.jquery("#" + mediumId).css('background-color',
'grey');
                                dom.jquery("#" + strongId).css('background-color',
'grey');
                                // Set SVG red elements to grey
                                //dom.jquery("#ic_securenet_top path").css("fill",
"#737373");
                        }
                }

                // SNPlus modality clients must not have access to the
configuration (#30480)
                if(modality == 'snplus') {
                        dom.jquery("#" + IconVodafoneButtonBarId).hide();
                }

                // Set view style
                if(view == "small")
                        dom.jquery("#" + IconVodafoneRedId).hide();

                var uriAdCode = "";
                if(uriAd)
                        uriAdCode = "&uriAd=" + uriAd;
                var uiCode = "";
                if(ui)
                        uiCode = "&ui=" + ui;

                // Set AdControl
                if(showAdManagementModule) {
                        if(policystateadsfree == "0") {
                                dom.jquery("#" +
adcontrolstatustextId).html(overlayText.adcontrolStatusPaused);
```

```
                                //dom.jquery("#" +
adcontrollinkId).html(overlayText.adcontrolLinkTextUnpaused);
                                //dom.jquery("#" + adcontrollinkId).attr("href",
VodafoneSettingsURL + "/adwhitelist?action=activate" + uriAdCode + uiCode);
                                dom.jquery("#" + adcontrollinkId).hide();
                                dom.jquery("#" +
adcontrolimage).prepend(adControlIcon);
                        } else {
                                if(policystateadsfree == "1") {
                                        dom.jquery("#" +
adcontrolimage).prepend(adControlIcon);
                                        if(inadwhitelist == "0") {
                                                dom.jquery("#" +
adcontrollinkId).html(overlayText.adcontrolLinkTextDisable);
                                                dom.jquery("#" + adcontrollinkId).attr("href",
VodafoneSettingsURL + "/adwhitelist?action=add" + uriAdCode + uiCode);
                                                dom.jquery("#" +
adcontrolstatustextId).html(overlayText.adcontrolStatusOn);
                                        } else {
                                                dom.jquery("#" +
adcontrollinkId).html(overlayText.adcontrolLinkTextReEnable);
                                                dom.jquery("#" + adcontrollinkId).attr("href",
VodafoneSettingsURL + "/adwhitelist?action=remove" + uriAdCode + uiCode);
                                                dom.jquery("#" +
adcontrolstatustextId).html(overlayText.adcontrolStatusDisabled);
                                        }
                                }
                                else {
                                        dom.jquery("#" + adcontrolstatusId).hide();
                                        dom.jquery("#" + adcontrolsepbarId).hide();
                                }
                        }

                        if(showAdsFreeStats) {
                                if(uriObjectBlockedAdsFree)
                                        dom.jquery("#" + adcontrolstatsId).show();
                                else
                                        dom.jquery("#" + adcontrolstatsId).hide();
                        }
                        else
                                dom.jquery("#" + adcontrolstatsId).hide();
                } else {
                        dom.jquery("#" + adcontrolstatusId).hide();
                        dom.jquery("#" + adcontrolsepbarId).hide();
                        dom.jquery("#" + adcontrolstatsId).hide();
                }

                // Set AdControl SVG width and height
                dom.jquery("#" + adcontrolimage + " svg").css("width",
"32px").css("height", "32px");

                // Set events
                var eventsSetInterval = setInterval(function() {
```

```
                        dom.jquery(document).off('click').on('click',
onDocumentClick);
                        dom.jquery(document).on("mouseup",
onDocumentMouseUp);
                        dom.jquery("#" +
IconVodafoneButtonBarId).off('click').on('click', function (p_event) {
                                location.href = VodafoneSettingsURL;
                        });
                        dom.jquery("#" +
IconVodafoneContainerId).off('click').on('click', onTabOpenClick);

                        dom.jquery(window).off("resize").on("resize", function(event)
{

                                /* Disconnecting MutationObserver object to avoid
detecting user orientation change
                                if((obs) && (event) && (event.originalEvent)) {
                                        if
(event.originalEvent.hasOwnProperty("isTrusted")) {
                                                if (event.originalEvent.isTrusted)
                                                        obs.disconnect();
                                        } else
                                                obs.disconnect();
                                }*/
                                //#47287: WE DONT CHECK IF EVENT SOURCE IS USER
OR SCRIPT. WE DISCONNECT (and reconnect) EVERY TIME WE WANT TO
CHANGE. ALFREDO PROPOSED. THIS OPENS A DOOR TO SCRIPTS.
                                if(obs) obs.disconnect();

                                // Redmine #37487: Determining icon width and height
depending on the configuration variables
                                var iconSizeFactor, iconSize;

                                if((typeof iconSizeScreenPercentage === "undefined")
|| (iconSizeScreenPercentage < 1) || (iconSizeScreenPercentage > 100))
                                        iconSizeFactor = 100/7;
                                else
                                        iconSizeFactor = 100/iconSizeScreenPercentage;

                                if(getViewportWidth().width/iconSizeFactor <
iconMinSizePx)
                                        iconSize = iconMinSizePx;
                                else if(getViewportWidth().width/iconSizeFactor >
iconMaxSizePx)
                                        iconSize = iconMaxSizePx;
                                else
                                        iconSize =
getViewportWidth().width/iconSizeFactor;

                                dom.jquery("#" + iconbarimageId + " svg, #" +
iconbarbgId + " svg")
                                        .css("width",  iconSize)
                                        .css("height", iconSize);
```

```
                                dom.jquery("#" +
IconVodafoneContainerId).css("width", getIconContainerWidth() + "px");

                                if(dom.jquery("#" + adcontrolstatustextId).css("width")
== "244px")
                                        dom.jquery("#" +
adcontrolstatustextId).css("width", "");
                                else
                                        dom.jquery("#" +
adcontrolstatustextId).css("width", "244px");

                                // #37262: Make icon content scrollable just when it
takes up all the screen (and just for mobile devices)
                                if (isOpen()) {
                                        var newHeight = dom.jquery("#" +
IconVodafonePanelId).height() + dom.jquery("#" +
IconVodafonePanel2Id).height() + 15;
                                        dom.jquery("div#" +
IconVodafoneContainerId).css("height", newHeight - 15);
                                        if(window.mobilecheck() &&
((navigator.userAgent.match(/iPad/i) == null) || (window.orientation == 0)) &&
                                           (parseInt(dom.jquery("div#" +
IconVodafoneContainerId).css("height")) >= getViewportWidth().height))
                                        {
                                                dom.jquery("div#" +
IconVodafoneContainerId).css("height", "100%");
                                                //dom.jquery("div#" +
IconVodafoneContainerId).css("overflow", "scroll");
                                        } else
                                                dom.jquery("div#" +
IconVodafoneContainerId).css("overflow", "visible");
                                }

                                //#47287: WE DONT CHECK IF EVENT SOURCE IS USER
OR SCRIPT. WE DISCONNECT (and reconnect) EVERY TIME WE WANT TO
CHANGE. ALFREDO PROPOSED. THIS OPENS A DOOR TO SCRIPTS.
                                if(obs)
obs.observe( document.getElementById(IconVodafoneContainerId),
{ attributes:true, childList:true, subtree:true, characterData:true });
                        });
                }, 3000);

                // Creating MutationObserver object
                obs = new MutationObserver(function(mutations, observer){
                        mutations.forEach(function(mutation) {
                                clearInterval(eventsSetInterval);
                                clearInterval(stylesSetInterval);

                                // If detecting an attack, NO Audit Request must be
launch for indicating that the icon has been loaded
                                launchAuditRequest = false;

                                // Remove overlay icon from DOM when detecting an
attack
```

```
                                if(destroyIfMutationDetected)
                                        dom.jquery("#" +
IconVodafoneContainerId).remove();

                                // Launch GET request to indicate WF that an attack to
overlay icon has been made (uriMutationRequest)
                                if(uriMutationRequest)
                                        dom.jquery.get(uriMutationRequest, function( data
) {});
                        });
                });

                // Activating MutationObserver object

obs.observe( document.getElementById(IconVodafoneContainerId),
{ attributes:true, childList:true, subtree:true, characterData:true });

                // Detect styles than may affect the icon
                var stylesSetInterval = setInterval(function(){
                        var sheets = document.styleSheets;
                        var mySheetStyleRules = [];
                        var hostSheetStyleRules = [];
                        for (var i=0; i < sheets.length; ++i) {
                                var rules = sheets[i].rules || sheets[i].cssRules;
                                if(rules) {
                                        for (var r=0; r < rules.length; ++r) {
                                                if(rules[r].selectorText) {
                                                        var ruleSet =
rules[r].selectorText.split(',');
                                                        for(var j=0; j < ruleSet.length; ++j) {
                                                                var currentRule = ruleSet[j].split('
');
                                                                for(var k=0; k <
currentRule.length; k++) {
                                                                        var hashPosition =
currentRule[k].indexOf('#');
                                                                        if(hashPosition >= 0) {
                                                                                if(sheets[i].ownerNode.id
== IconVodafoneStylesheetId)

mySheetStyleRules.push(currentRule[k].substring(hashPosition));
                                                                                else

hostSheetStyleRules.push(currentRule[k].substring(hashPosition));
                                                                        }
                                                                }
                                                        }
                                                }
                                        }
                                }
                        }
                        var found = false;
                        var mySheetIndex = 0;
                        var hostSheetIndex = 0;
```

```
                        while((!found) && (mySheetIndex <
mySheetStyleRules.length)) {
                                var currId = mySheetStyleRules[mySheetIndex];

                                while((!found) && (hostSheetIndex <
hostSheetStyleRules.length)) {

if(hostSheetStyleRules[hostSheetIndex].indexOf(currId) >= 0) {
                                        found = true;
                                        clearInterval(eventsSetInterval);
                                        clearInterval(stylesSetInterval);

                                        // If detecting an attack, NO Audit Request
must be launch for indicating that the icon has been loaded
                                        launchAuditRequest = false;

                                        // Remove overlay icon from DOM when
detecting an attack
                                        if(destroyIfMutationDetected)
                                                dom.jquery("#" +
IconVodafoneContainerId).remove();

                                        // Launch GET request to indicate WF that an
attack to overlay icon has been made (uriMutationRequest)
                                        if(uriMutationRequest)
                                                dom.jquery.get(uriMutationRequest,
function( data ) {});
                                }
                                else
                                        hostSheetIndex++;
                                }

                                if(!found)
                                        mySheetIndex++;
                        }
                }, 3000);

                // Launch GET request to indicate WF that overlay icon has been
correctly loaded (uriAuditRequest)
                if(launchAuditRequest)
                        if(uriAuditRequest)
                                dom.jquery.get(uriAuditRequest, function( data ) {});
        }
    );
})();</script><style id="lFiPmd" type="text/css">html{box-sizing:border-box;-
moz-box-sizing:border-box;}div#KrFdpOKftyLoxR {    display: none;    height:
5px;    box-sizing:content-box;    padding-left: 10px !important;    padding-right:
10px !important;    margin: 0px auto;    overflow:visible;    position: absolute;
top: 0px !important;    width       : 960px;    z-index: 2147483647 !important;
font-size: 13px !important;} div#KrFdpOKftyLoxR * {    background: none;
border: none !important;    float: none !important;    font-size: 90%;    font-family:
Arial, Helvetica, sans-serif !important;    font-weight: normal !important;
left:auto;    line-height: 2ex !important;    letter-spacing:0;    margin: 0 !
important;    outline:none !important;    padding: 0 !important;    text-decoration:
```

none !important; text-transform: none !important; text-shadow:none !important; vertical-align:middle !important; white-space:nowrap !important; z-index: 2147483647 !important; zoom: 1;} div#KrFdpOKftyLoxR td { text-align: left !important;} div#KrFdpOKftyLoxR { bottom : 0; clear : both !important; margin-bottom: 10px !important;} div#NaHdeC, div#xszsInLAE { bottom : 0; clear : both !important; margin-bottom: 0px !important; margin-right : 13px !important; width : 96% !important;} div#KrFdpOKftyLoxR button { cursor : pointer display : inline !important; margin : 10px 2px !important; padding : 5px 10px !important;} div#KrFdpOKftyLoxR button img { margin : 0 5px 0 0 !important;} div#KrFdpOKftyLoxR button span { font-size : 1.8em; font-weight : bold !important; line-height : 1em !important;} div#KrFdpOKftyLoxR .bLyREeIoxAisq { background : -moz-linear-gradient(top, #FDFDFD 0%, #E9E9E9 100%) !important; background : -webkit-gradient(linear, left top, left bottom, color-stop(0%,#FDFDFD), color-stop(100%,#E9E9E9)) !important; background : -webkit-linear-gradient(top, #FDFDFD 0%,#E9E9E9 100%) !important; background : -o-linear-gradient(top, #FDFDFD 0%,#E9E9E9 100%) !important; background : -ms-linear-gradient(top, #FDFDFD 0%,#E9E9E9 100%) !important; background : linear-gradient(top, #FDFDFD 0%,#E9E9E9 100%) !important; filter : progid:DXImageTransform.Microsoft.gradient(startColorstr="#FDFDFD", endColorstr="#E9E9E9",GradientType=0) !important; border : #AFAFAF solid 1px !important; -moz-border-radius : 3px; -ms-border-radius : 3px; -o-border-radius : 3px; -webkit-border-radius: 3px; border-radius : 3px; color : black; font-weight : bold !important; width : 95% !important; text-align : center !important;} div#HcFwYUJZcChmYh, div#AiLRTzaQg { background-repeat: repeat-x !important; background-position: 0 100% !important; background-color: #ffffff !important; -moz-box-sizing: content-box; -moz-box-shadow: 0 5px 5px 5px #ccc; -ms-box-shadow: 0 5px 5px 5px #ccc; -o-box-shadow: 0 5px 5px 5px #ccc; -webkit-box-shadow: 0 5px 5px 5px #ccc; text-shadow: 0 1px 0 rgba(255, 255, 255, .8); -moz-border-radius-bottomright: 5px; -moz-border-radius-bottomleft: 5px; -ms-border-radius-bottomright: 5px; -ms-border-radius-bottomleft: 5px; -o-border-radius-bottomright: 5px; -o-border-radius-bottomleft: 5px; -webkit-border-radius-bottomright: 5px; -webkit-border-radius-bottomleft: 5px; color: #999999; display: none; overflow: hidden !important; position: relative !important; white-space: nowrap !important; width: 100%; height: auto;} div#NggoUjbfmLGO, div#AiLRTzaQg { text-align: left !important;} div#HcFwYUJZcChmYh, div#AiLRTzaQg div.GzB, div#HcFwYUJZcChmYh { overflow-x:hidden !important; overflow-y:auto !important; position: absolute; top: 0px !important; width: 100% !important; white-space:nowrap;} div#HcFwYUJZcChmYh, div#AiLRTzaQg .uonftejX { left: 0 !important;} div#KrFdpOKftyLoxR div#BEtgclOjaYUDL { overflow:visible !important; cursor: pointer} img#DJpDYNS, img#frOMjfHl, img#WmYrb { box-shadow : none !important; display : inline !important;} div#KrFdpOKftyLoxR span { white-space: -moz-pre-wrap !important; white-space: -pre-wrap !important; white-space: -o-pre-wrap !important; white-space: pre-wrap !important; word-wrap: break-word !important; white-space: normal !important;} img#fCjqIhTUfeT { box-shadow : none !important; display : inline !important;} img#JPun { box-shadow : none !important; display : inline !important;} img#lsvajwU { box-shadow : none !important; display : inline !important;} svg { display : inline !important;}</style></head><body id="main_body"><div

id="KrFdpOKftyLoxR" style="position: absolute; top: 0px; left: 0px; z-index: 2147483647; display: block; min-height: 5px; direction: ltr; transform: translate3d(0px, 0px, 0px); width: 960px;"> <!--?xml version="1.0" encoding="UTF-8"?--><svg width="115px" height="113px" viewBox="0 0 115 113" version="1.1" xmlns="http://www.w3.org/2000/svg" xmlns:xlink="http://www.w3.org/1999/xlink" style="width: 48px; height: 48px;">
<title>logo_folded_new</title>   <g id="logo_folded_new" stroke="none" stroke-width="1" fill="none" fill-rule="evenodd">   <g id="Shape">
<path d="M0,0 L115,0 L115,56 C115,86.927946 89.927946,112 59,112 L56,112 C25.072054,112 3.78758101e-15,86.927946 0,56 L0,0 L0,0 Z" id="Fill" fill="#FFFFFF"></path>   <path d="M115,0 L115,56 C115,86.927946 89.927946,112 59,112 L56,112 C25.072054,112 0,86.927946 0,56 L0,0 L115,0 Z M113,2 L2,2 L2,56 C2,85.5251427 25.6955087,109.515903 55.1070113,109.992766 L56,110 L59,110 C88.5251427,110 112.515903,86.3044913 112.992766,56.8929887 L113,56 L113,2 Z" id="Outline" fill="#979797" fill-rule="nonzero"></path>   <polygon id="Red-Stroke" fill="#E60000" fill-rule="nonzero" points="115 0 115 5 0 5 0 0"></polygon>   </g>   <g id="shield" transform="translate(16.000000, 15.000000)" fill-rule="nonzero">   <path d="M39.5820904,3.37158192 C17.6925989,17.0642373 4.22033898,5.07847458 4.22033898,11.9294915 C4.22033898,58.3954237 34.5458192,74.029435 40.3276836,76.5850847 C40.9256833,76.8460732 41.6053902,76.8460732 42.2033898,76.5850847 C47.980565,74.029435 78.3107345,58.3954237 78.3107345,11.9294915 C78.3107345,5.05971751 64.8384746,17.0876836 42.9489831,3.37158192 C41.9191126,2.72743695 40.6119609,2.72743695 39.5820904,3.37158192 Z" id="Shape" fill="#E60000"></path>   <path d="M41.2655367,2.88373817 C40.6715692,2.87964037 40.0883205,3.0421052 39.5820904,3.35282486 C17.6925989,17.0642373 4.22033898,5.07847458 4.22033898,11.9294915 C4.22033898,58.3954237 34.5458192,74.029435 40.3276836,76.5850847 C40.6230637,76.716215 40.9423633,76.7848644 41.2655367,76.7867232 L41.2655367,2.88373817 Z" id="Shape" fill="#B20000"></path>   <path d="M39.5820904,4.30474576 C40.6126014,3.66283681 41.918472,3.66283681 42.9489831,4.30474576 C64.5711864,17.819209 77.9731073,6.28830508 78.3107345,12.6188136 C78.3107345,12.3890395 78.3107345,12.149887 78.3107345,11.9248023 C78.3107345,5.05502825 64.8384746,17.0829944 42.9489831,3.36689266 C41.918472,2.7249837 40.6126014,2.7249837 39.5820904,3.36689266 C17.6925989,17.0642373 4.22033898,5.07847458 4.22033898,11.9294915 C4.22033898,12.1639548 4.22033898,12.3984181 4.22033898,12.6235028 C4.5579661,6.31175141 17.9645763,17.819209 39.5820904,4.30474576 Z" id="Shape" fill="#FFFFFF" opacity="0.2"></path>   <path d="M42.2033898,75.6472316 C41.6053902,75.9082201 40.9256833,75.9082201 40.3276836,75.6472316 C34.5786441,73.1009605 4.53920904,57.6123164 4.22033898,11.7231638 C4.22033898,11.7981921 4.22033898,11.8732203 4.22033898,11.9482486 C4.22033898,58.4141808 34.5458192,74.0481921 40.3276836,76.6038418 C40.9256833,76.8648303 41.6053902,76.8648303 42.2033898,76.6038418 C47.980565,74.0481921 78.3107345,58.4141808 78.3107345,11.9482486 C78.3107345,11.8685311

78.3107345,11.7935028 78.3107345,11.7231638 C77.9965537,57.6123164
47.9571186,73.1009605 42.2033898,75.6472316 Z" id="Shape" fill="#1D1D1B"
opacity="0.2"></path> </g> </g></svg> <div
id="HcFwYUJZcChmYh" style="height: auto; -moz-box-sizing: content-box !
important;"><div id="jGYCUW" style="margin-right: 13px !important; width:
96% !important;"> <div
id="vGYpEistNIntwqU"><div style="margin-left: 10px ! important; padding-top:
7px !important; "><div style="display:inline-block !important; float:left !
important"><div id="frOMjfHl" style="display: inline; width: 64px; height:
64px;"><!--?xml version="1.0" encoding="UTF-8"?--><svg width="111px"
height="111px" viewBox="0 0 111 111" version="1.1"
xmlns="http://www.w3.org/2000/svg"
xmlns:xlink="http://www.w3.org/1999/xlink" style="width: 32px; height:
32px;"><title>logo_unfolded_new</title> <g id="logo_unfolded_new"
stroke="none" stroke-width="1" fill="none" fill-rule="evenodd"> <g
id="shield" transform="translate(5.000000, 6.000000)" fill-rule="nonzero">
<path d="M48.1661582,4.10276836 C21.529548,20.7649153
5.13559322,6.17983051 5.13559322,14.5166102 C5.13559322,71.0594915
42.0376836,90.0840113 49.0734463,93.1938983 C49.8011327,93.5114867
50.6282459,93.5114867 51.3559322,93.1938983 C58.3859887,90.0840113
95.2937853,71.0594915 95.2937853,14.5166102 C95.2937853,6.15700565
78.8998305,20.7934463 52.2632203,4.10276836 C51.0100045,3.31892931
49.4193741,3.31892931 48.1661582,4.10276836 Z" id="Shape"
fill="#E60000"></path> <path d="M50.2146893,3.50912717
C49.4919095,3.5041407 48.7821731,3.70183886 48.1661582,4.0799435
C21.529548,20.7649153 5.13559322,6.17983051 5.13559322,14.5166102
C5.13559322,71.0594915 42.0376836,90.0840113 49.0734463,93.1938983
C49.4328847,93.3534664 49.82143,93.4370037 50.2146893,93.4392655
L50.2146893,3.50912717 Z" id="Shape" fill="#B20000"></path>
<path d="M48.1661582,5.23830508 C49.4201536,4.45718696
51.009225,4.45718696 52.2632203,5.23830508 C78.5745763,21.6836158
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78.8998305,20.7877401 52.2632203,4.09706215 C51.009225,3.31594402
49.4201536,3.31594402 48.1661582,4.09706215 C21.529548,20.7649153
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C5.13559322,14.3568362 5.13559322,14.4481356 5.13559322,14.539435
C5.13559322,71.0823164 42.0376836,90.1068362 49.0734463,93.2167232
C49.8011327,93.5343115 50.6282459,93.5343115 51.3559322,93.2167232
C58.3859887,90.1068362 95.2937853,71.0823164 95.2937853,14.539435
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To change your security settings or show/hide the Secure Net icon when browsing click on the button below <!--?xml version="1.0" encoding="UTF-8" standalone="no"?--><svg width="32px" height="32px" viewBox="0 0 32 32" version="1.1" xmlns="http://www.w3.org/2000/svg" xmlns:xlink="http://www.w3.org/1999/xlink" style="width: 32px; height: 32px;">
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important;">Ad-Control filter status is undefined
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click here to view this information

 The home of Multi Crew Experience   <ul id="main_nav_list">
Home
Screenshots
Downloads
Support
FAQ
Video
Buy <script src="http://www.gmodules.com/ig/ifr?url=http://www.google.com/ig/modules/translatemypage.xml&up_source_language=en&synd=open&w=160&h=60&title=Google+Translate+My+Page&lang=en&country=ALL&border=%23ffffff%7C0px%2C1px+solid+%23993333%7C0px%2C1px+solid+%23bb5555%7C0px%2C1px+solid+%23DD7777%7C0px%2C2px+solid+%23EE8888&output=js"></script>
Q: <u>What is Multi Crew Experience?</u>
A: Multi Crew Experience is a new add-on to the award winning, Microsoft Flight Simulator 2020, FSX, Prepar3D and FS9 software. It adds the missing elements, like crew coordination, interactive checklist reading, realistic ATC operation, call-outs and warnings against deviation from standards, as well as extras, like user interface voice control.
Q: <u>Who may benefit from this application:</u>
A: Anyone who wants to make the home flight simulation experience as real as it can get. Trainee pilots can use it as a tool to practice multi crew interaction and ATC phraseology.

One of the bad aspects of home flight simulation, is that it makes you breed bad habits, like trying to fly a B747 on your own, or looking for keyboard key strokes to interact with ATC.

For non native English speakers, this constitutes a great practice tool. If you are seeking an international career, as an airline pilot, you must interact well with other crew members, in English.

You don't need to be fluent in English though. Just need to be familiar with aviation terminology.

What better tool to boost your confidence!

Q: <u>How does it work?</u>

A: Multi Crew Experience builds on Microsoft SAPI 5® outstanding technology, that brings speech recognition, as well as speech synthesis to the windows® platform. We have choosen a modular design, that allows you to use, some, or all the features, according to your needs. This makes it easier to integrate. It will also play nicely, when used alongside other third party add-ons. It is fully multithreaded, and was designed with performance in mind.

Q: <u>Does it work with Asobo/Microsoft MSFS?</u>

A: Yes it does, in addition to Pepar3D and FSX.

Q: <u>What are the system requirements?</u>

A: The requirements are the same as those specified for running Microsoft Flight Smulator 2020, FSX, PreparD or FS9, depending on which simulator version you use, as well as a headset with good quality microphone.

<u>Q: Does it require an English version of Windows?</u>

A: No, this application has been tested, and expected to work on almost any language localized version of Windows 10.

For Vista or Windows 7 localized versions, like Spanish or French, you will need Vista, Windows 7 Ultimate or Enterprise, to be able to download and install the free Microsoft English language pack. The alternative is to use a free third party tool called Vistalizator, that would help you run MCE under any operating system and Language.

Q: <u>Do I need to be a native English speaker to use the software? </u>

A: Although it helps, the answer is no. You will be surprised to learn about the poor grasp of the English language among real world pilots around the world. Though you need to know what heading, speed, altitude, flaps...mean. We are talking 200 to 300 words overall.

Q: <u>Can I use MCE with a networked Radar Contact setup:</u>

A: Yes, but because MCE has no way of finding out if RC4 is running or indeed installed, you need to make a few changes to the mce.ini configuration file. Open the file C:\Users\your_user_name\AppData\Roaming\Multi Crew Experience\mce.ini using Notepad. Look at the section titled [ATC], and change things to look like...

```
<p align="left">[ATC]<br>
  UseRadioNoise=1<br>
  SecondaryNeedAtcWindow=0<br>
  atc1=1<br>
  atc2=0<br>
  atc3=1<br>
  atc4=1<br>
  atc5=0<br>
  UseRadarContact=1<br>
  IgnoreRC4Registry=1</p>
<p align="left">Save the file.</p>
<p align="left">The next time you start MCE, it will prompt you to provide
  the RC4 installation network path. Please do so, and it will be saved.</p>
<p align="left">In a networked scenario, you must make sure Radar
contact
  is started first, flight plan loaded, and "Start RC" button
  pressed, before attempting to start MCE.</p>
<p><u>Q: Do i have to be online to use this product?</u></p>
<p>A: No, this is a desktop application. Therefore you don't need an
Internet
  connection at all.</p>
<p><u>Q: What is this "DIALOG MODE" thing?</u></p>
<p>A: Whenever a flight simulator dialog box is displayed (weather dialog,
  aircraft dialog, etc), MCE switches to "DIALOG MODE", a state
  where only commands to interact with dialog boxes are enabled. You will
  not be able to interact with co-pilot in that mode. As soon as the dialog
  is closed, MCE will revert to "FLIGHT MODE". If for some reason,
  MCE is stuck in dialog mode, right click the user interface, then select
  "Force Flight Mode" option in drop down menu.</p>
<p><u>Q: Does MCE interface with Radar Contact or ProFlight Emulator
ATC?</u></p>
<p>A: Starting from Version V2.0 you can interact with Radar Contact ATC
  as well as Pro Flight Emulator (PF3/PFE) ATC using speech
recognition.</p>
<p> </p>
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pageTracker._trackPageview();
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        // Redmine #36707: This variable is used to determine which algorithm
must be used to determine the protection level:
    // false        -> High: 2;     Medium: 1;  Low: in other case.
    // true         -> High: 259;   Low: 0,2;   Medium: in other case.
    var considerSSLInspectionForProtectionLevel = false;

        // Redmine #36975: This variable is used to determine if AdsFree stats must
be showed
        var showAdsFreeStats = false;
        var uriObjectBlockedAdsFree;

        // Redmine #37487 (CP040): This variable is used to determine the screen
percentege that icon size takes up
        var iconSizeScreenPercentage = 9;
        var iconMinSizePx = 30;
        var iconMaxSizePx = 48;

        // Redmine #37736: This variable is used to determine if the icon must be
removed when MutationObserver detects an attack
        var destroyIfMutationDetected = true;

        // Redmine #38369: This variable is used to determine if "Explanation Text"
module must be shown
        var showExplanationTextModule = true;

        // Redmine #38369: This variable is used to determine if "Config Button"
module must be shown
        var showConfigButtonModule = true;

        // Redmine #38369: This variable is used to determine if "Ad Management"
module must be shown
        var showAdManagementModule = false;

    'use strict';

        var dom = {};
        dom.jquery = jQuery.noConflict(true);

        var obs;
        var launchAuditRequest = true;

    ///////////////////
    // Configuration //
    ///////////////////
    var VodafoneSettingsURL = 'https://securenet.vodafone.co.uk' ;

        ///////////
    // Texts //
    ///////////
    var overlayText = dom.jquery.parseJSON(
        '{'                                                                 +
        '"header"                : "Vodafone Secure Net",'                          +

        '"protectionLevelTitle"   : "Your security level is ","'                    +
```

```
        '"protectionLevelLow"     : "Low",'                                        +
        '"protectionLevelMedium"  : "Medium",'                                         +
        '"protectionLevelHigh"    : "Strong",'                                       +

            '"explanationTextHeader"  : "Vodafone Secure Net keeps you safe and
secure online.",'                                          +
            '"explanationTextBody"    : "To change your security settings or
show/hide the Secure Net icon when browsing click on the button below",'   +

            '"adcontrolStatusUndef"                : "Ad-Control filter status is
undefined",'     +
            '"adcontrolStatusOn"                  : "Ad Management is enabled",'
+
            '"adcontrolStatusDisabled"             : "Ad Management is disabled for
this website",'                    +
            '"adcontrolStatusPaused"               : "Ad Management is disabled",'
+
            '"adcontrolLinkTextUndef"              : "The link is undefined",'
+
            '"adcontrolLinkTextReEnable"    : "Re-enable for this website",'
+
            '"adcontrolLinkTextDisable"     : "Disable for this website only",'
+
            '"adcontrolLinkTextUnpaused"    : "Tap here to UNPAUSED",'
+
            '"adcontrolBlockedBanners"             : "Blocked banners: ",'
+

        '"settingsButton"                    : "Manage Secure Net Settings",'          +

            '"blockedBannersTimeoutWarning" : "click here to view this
information"'  +
        '}'
    );

        var IconVodafoneStylesheetId = generateRandomID();
        var IconVodafoneContainerId = generateRandomID();
        var IconVodafoneWholeId = generateRandomID();
        var IconVodafoneRedId = generateRandomID();
        var iconbarId = generateRandomID();
        var iconbarbgId = generateRandomID();
        var iconbarimageId = generateRandomID();
        var IconVodafonePanelId = generateRandomID();
        var IconVodafonePanelLinksId = generateRandomID();
        var IconVodafonePanelLeftClass = generateRandomID();
        var IconVodafonePanelLeftId = generateRandomID();
        var IconVodafonePopularId = generateRandomID();
        var iconbariconId = generateRandomID();
        var IconVodafoneTabId = generateRandomID();
        var IconVodafonePanel2Id = generateRandomID();
        var IconVodafoneProtectionLevelTableId = generateRandomID();
        var protectionlevelId = generateRandomID();
        var lowId = generateRandomID();
        var mediumId = generateRandomID();
```

```
        var strongId = generateRandomID();
        var finId = generateRandomID();
        var explanationTextId = generateRandomID();
        var adcontrolstatusId = generateRandomID();
        var adcontrolstatustextId = generateRandomID();
        var adcontrollinkId = generateRandomID();
        var adcontrolstatsId = generateRandomID();
        var adcontrolstatstextId = generateRandomID();
        var adcontrolnumberblockedbannersId = generateRandomID();
        var adcontrolstatslinkId = generateRandomID();
        var adcontrolsepbarId = generateRandomID();
        var IconVodafoneButtonBarId = generateRandomID();
        var IconVodafoneBoxGrayClass = generateRandomID();
        var IconVodafoneStatsId = generateRandomID();
        var IconVodafoneTabId = generateRandomID();
        var IconVodafoneTabLineId = generateRandomID();
        var IconVodafoneGreyFullId = generateRandomID();
        var iconCBimage = generateRandomID();
        var adcontrolimage = generateRandomID();
        var iconChevronImage = generateRandomID();
        var IconVodafoneTabIdHM = generateRandomID();
        var IconMainHeaderIconId = generateRandomID();


        ////////////////////////////////////////
    // checks if vertical scroll is present //
    ////////////////////////////////////////
        function verticalScrollPresent()
        {
                return (getViewportWidth().width !==
document.documentElement.clientWidth);
        }

        ////////////////////////////////////////
    // get the scroll width                 //
    ////////////////////////////////////////
        function getScrollbarWidth() {
                var outer = document.createElement("div");
                outer.style.visibility = "hidden";
                outer.style.width = "100px";
                outer.style.msOverflowStyle = "scrollbar"; // needed for WinJS apps

                document.body.appendChild(outer);

                var widthNoScroll = outer.offsetWidth;
                // force scrollbars
                outer.style.overflow = "scroll";

                // add inner div
                var inner = document.createElement("div");
                inner.style.width = "100%";
                outer.appendChild(inner);

                var widthWithScroll = inner.offsetWidth;
```

```
		// remove divs
		outer.parentNode.removeChild(outer);

		return widthNoScroll - widthWithScroll;
	}

	//////////////////////////////////////////
	// get the width for the icon container //
	//////////////////////////////////////////
	function getIconContainerWidth()
	{
		var iconContainerWidth = getViewportWidth().width;

		if(verticalScrollPresent()) {
			iconContainerWidth = iconContainerWidth - getScrollbarWidth();
		}

		containerElem = document.getElementById(IconVodafoneContainerId);
		if(containerElem) {
			var bordT = dom.jquery("#" +
IconVodafoneContainerId).outerWidth() - dom.jquery("#" +
IconVodafoneContainerId).innerWidth();
			var paddT = dom.jquery("#" +
IconVodafoneContainerId).innerWidth() - dom.jquery("#" +
IconVodafoneContainerId).width();
			var margT = dom.jquery("#" +
IconVodafoneContainerId).outerWidth(true) - dom.jquery("#" +
IconVodafoneContainerId).outerWidth();

			iconContainerWidth = iconContainerWidth - bordT - paddT -
margT;

		}
		// minus default values
		else {
			iconContainerWidth = iconContainerWidth - 20; // 10 (padding-
right) + 10 (padding-left) +  0 (border) + 0 (margin)
		}

		return iconContainerWidth;
	}


	//////////////////////
	// Generation of IDs //
	//////////////////////
	function generateRandomID() {
		var resID = "";
		var charList =
"ABCDEFGHIJKLMNOPQRSTUVWXYZabcdefghijklmnopqrstuvwxyz";
		// Variable IDlength = Random number between 3 and 15
[Math.floor(Math.random()*(max-min+1)+min)]
		var IDlength = Math.floor(Math.random() * 13) + 3;
```

```
		for(var i = 0; i < IDlength; i++ )
			resID += charList.charAt(Math.floor(Math.random() *
charList.length));
		return resID;
	}

	////////////////////////////////
	// Detection of mobile devices //
	////////////////////////////////
	window.mobilecheck = function() {
		return 'ontouchstart' in window || navigator.maxTouchPoints;
		// 'ontouchstart' in window  works on most browsers
		// navigator.maxTouchPoints works on IE10/11 and Surface
	};

	//////////////////////////////////////////////
	// Check if overalay icon data panel is shown //
	//////////////////////////////////////////////
	function isOpen() {
		return dom.jquery("div#" + IconVodafonePanelId).is(':visible');
	}

	////////////////////////////////
	// Draggable without jQuery UI //
	////////////////////////////////
	(function(jq) {
		jq.fn.drags = function(opt) {
			opt = jq.extend({handle:"",cursor:"pointer"}, opt);

		if(opt.handle === "") {
				var $el = this;
		} else {
				var $el = this.find(opt.handle);
		}

			if(window.mobilecheck()) {

				return $el.css('cursor', opt.cursor).on("touchstart",
function(event) {

					/* Disconnecting MutationObserver object to avoid
detecting user clicks on the icon/bar
					if((obs) && (event) && (event.originalEvent)) {
						if
(event.originalEvent.hasOwnProperty("isTrusted")) {
							if (event.originalEvent.isTrusted)
								obs.disconnect();
						} else
							obs.disconnect();
					}*/
					//#47287: WE DONT CHECK IF EVENT SOURCE IS USER
OR SCRIPT. WE DISCONNECT (and reconnect) EVERY TIME WE WANT TO
CHANGE. ALFREDO PROPOSED. THIS OPENS A DOOR TO SCRIPTS.
					if(obs) obs.disconnect();
```

```
                                var e = event.originalEvent;
                                if(opt.handle === "") {
                                        var $drag = jq(this).addClass('draggable');
                                } else {
                                        var $drag = jq(this).addClass('active-
handle').parent().addClass('draggable');
                }
                var z_idx = $drag.css('z-index'),
                drg_h = $drag.outerHeight(),
                drg_w = $drag.outerWidth(),
                pos_y = $drag.offset().top + drg_h - e.targetTouches[0].pageY,
                pos_x = $drag.offset().left + drg_w - e.targetTouches[0].pageX;

                                jq(this).on("touchmove", function(event) {
                                        var e = event.originalEvent;
                                        e.preventDefault();
                                        // Redmine 37360: Avoid undesirable effect in iOS
>= 9 when moving the overlay icon
                                        // Redmine: 44711: Icon is movable completely out
of screen with the mobile in landscape mode.
                                        var curr_pos = e.targetTouches[0].pageX + pos_x
- drg_w;
                                        if(curr_pos > 0 && curr_pos <
getIconContainerWidth())
                                                jq('.draggable').css('left', curr_pos + 'px');
                });

                                //#47287: WE DONT CHECK IF EVENT SOURCE IS USER
OR SCRIPT. WE DISCONNECT (and reconnect) EVERY TIME WE WANT TO
CHANGE. ALFREDO PROPOSED. THIS OPENS A DOOR TO SCRIPTS.
                                //if(obs)
obs.observe( document.getElementById(IconVodafoneContainerId),
{ attributes:true, childList:true, subtree:true, characterData:true });


                        }).on("touchend", function() {
                if(opt.handle === "") {
                                        jq(this).removeClass('draggable');
                } else {
                                        jq(this).removeClass('active-
handle').parent().removeClass('draggable');
                }
                        });
                } else {

                        return $el.css('cursor', opt.cursor).on("mousedown",
function(e) {

                                /* Disconnecting MutationObserver object to avoid
detecting user clicks on the icon/bar
                                if((obs) && (e) && (e.originalEvent)) {
                                        if (e.originalEvent.hasOwnProperty("isTrusted")) {
                                                if (e.originalEvent.isTrusted)
```

```
                                        obs.disconnect();
                                } else
                                        obs.disconnect();
                        }*/
                        //#47287: WE DONT CHECK IF EVENT SOURCE IS USER
OR SCRIPT. WE DISCONNECT (and reconnect) EVERY TIME WE WANT TO
CHANGE. ALFREDO PROPOSED. THIS OPENS A DOOR TO SCRIPTS.
                        if(obs) obs.disconnect();

                        if(opt.handle === "") {
                                var $drag = jq(this).addClass('draggable');
                        } else {
                                var $drag = jq(this).addClass('active-
handle').parent().addClass('draggable');
                        }

                        var z_idx = $drag.css('z-index'),
                        drg_h = $drag.outerHeight(),
                        drg_w = $drag.outerWidth(),
                        pos_y = $drag.offset().top + drg_h - e.pageY,
                        pos_x = $drag.offset().left + drg_w - e.pageX;

                        $drag.css('z-index', 1000).parents().on("mousemove",
function(e) {
                                var curr_pos = e.pageX + pos_x - drg_w;
                                if(curr_pos > 0 && curr_pos <
getIconContainerWidth())
                                        jq('.draggable').css('left', curr_pos + 'px');
                        });

                        e.preventDefault(); // disable selection

                        //#47287: WE DONT CHECK IF EVENT SOURCE IS USER
OR SCRIPT. WE DISCONNECT (and reconnect) EVERY TIME WE WANT TO
CHANGE. ALFREDO PROPOSED. THIS OPENS A DOOR TO SCRIPTS.
                        //if(obs)
obs.observe( document.getElementById(IconVodafoneContainerId),
{ attributes:true, childList:true, subtree:true, characterData:true });


                        }).on("mouseup", function() {
                if(opt.handle === "") {
                                jq(this).removeClass('draggable');
                } else {
                                jq(this).removeClass('active-
handle').parent().removeClass('draggable');
                }
                        });
                }
        }
    })(dom.jquery);

        ////////////////////////////////////////
    // Click event on overlay icon/panel //
```

```
    ////////////////////////////////////////
    function onTabOpenClick(p_event) {
            /* Disconnecting MutationObserver object to avoid detecting user
clicks on the icon/bar
            if((obs) && (p_event) && (p_event.originalEvent)) {
                if (p_event.originalEvent.hasOwnProperty("isTrusted")) {
                    if (p_event.originalEvent.isTrusted)
                        obs.disconnect();
                } else
                    obs.disconnect();
            }*/
            //#47287: WE DONT CHECK IF EVENT SOURCE IS USER OR SCRIPT. WE
DISCONNECT (and reconnect) EVERY TIME WE WANT TO CHANGE. ALFREDO
PROPOSED. THIS OPENS A DOOR TO SCRIPTS.
            if(obs) obs.disconnect();

            var __isOpen = isOpen();
        var __panel1  = dom.jquery("div#" + IconVodafonePanelId);
            var __panel2  = dom.jquery("div#" + IconVodafonePanel2Id);

        if (p_event) {
            p_event.stopPropagation();
        }

            if (!__isOpen) {
            var newMargin = dom.jquery("#" + IconVodafonePanelId).height() +
dom.jquery("#" + IconVodafonePanel2Id).height() + 15;
            dom.jquery("#" + IconVodafoneContainerId).css('margin-bottom',
newMargin);

                // Launch GET request to obtain the number of blocked banners
waiting for the determined seconds
                if((showAdManagementModule) && (showAdsFreeStats) &&
(uriObjectBlockedAdsFree)) {
                    dom.jquery.ajax({
                        url: uriObjectBlockedAdsFree,
                        success: function(data) {
                            if(data == "-1") {
                                dom.jquery("#" +
adcontrolnumberblockedbannersId).hide();
                                dom.jquery("#" +
adcontrolstatslinkId).show();
                            }
                            else {
                                dom.jquery("#" + adcontrolstatslinkId).hide();
                                dom.jquery("#" +
adcontrolnumberblockedbannersId).show();
                                dom.jquery("#" +
adcontrolnumberblockedbannersId).text(data);
                            }
                        }
                    });
                }
        }
```

```
	else if (dom.jquery("#" + IconVodafoneContainerId).css('position') ==
'relative') {
		dom.jquery("#" + IconVodafoneContainerId).css('margin-bottom',
"auto");
	}

	__panel1.slideToggle('slow');
		__panel2.slideToggle('slow');

		if(__isOpen) {
			setTimeout(function(){
				dom.jquery("#" + IconVodafoneWholeId).show();
			},700);

			// Redmine 37262: Make icon content scrollable just when it takes
up all the screen
			dom.jquery("div#" + IconVodafoneContainerId).css("height",
"5px");
			dom.jquery("div#" + IconVodafoneContainerId).css("overflow",
"visible");
		} else {
			dom.jquery("#" + IconVodafoneWholeId).hide();

			// Redmine 37262: Make icon content scrollable just when it takes
up all the screen (and just for mobile devices)
			dom.jquery("div#" + IconVodafoneContainerId).css("height",
newMargin - 15);
			if(window.mobilecheck() && ((navigator.userAgent.match(/iPad/i)
== null) || (window.orientation == 0)) &&
				(parseInt(dom.jquery("div#" +
IconVodafoneContainerId).css("height")) >= getViewportWidth().height))
			{
				dom.jquery("div#" + IconVodafoneContainerId).css("height",
"100%");
				//dom.jquery("div#" +
IconVodafoneContainerId).css("overflow", "scroll");
			} else
				dom.jquery("div#" +
IconVodafoneContainerId).css("overflow", "visible");

			// TODO: Works fine on PC, but is really slow on mobile.
			// $("#IconVodafonePanel span, #IconVodafonePanel2
span").each(function () {
			//		shrinkTextIfNeeded(this, Math.min($
(this).parent().width(),	getViewportWidth().width) - $(this).position().left);
			//	});
		}

		dom.jquery("#" + iconbarId).removeClass('draggable');

		//#47287: WE DONT CHECK IF EVENT SOURCE IS USER OR SCRIPT. WE
DISCONNECT (and reconnect) EVERY TIME WE WANT TO CHANGE. ALFREDO
PROPOSED. THIS OPENS A DOOR TO SCRIPTS.
```

```
		//if(obs)
obs.observe( document.getElementById(IconVodafoneContainerId),
{ attributes:true, childList:true, subtree:true, characterData:true });

	}

	//////////////////////////////////////////////
	// Click event on whatever area of document //
	//////////////////////////////////////////////
	function onDocumentClick(p_event) {
		if (isOpen() && (p_event.which == 1)) {
			onTabOpenClick();
		} else {
			dom.jquery("#" + iconbarId).removeClass('draggable');
		}
	}

	///////////////////////////////////////////////////
	// Mouse up event on whatever area of document //
	///////////////////////////////////////////////////
	function onDocumentMouseUp(p_event) {
		dom.jquery("#" + iconbarId).removeClass('draggable');
	}

	//////////////////////////////////////////////////////////////////////////////
	// Get the value of an URL parameter of the "OPTSmartBannerScript" script //
	//////////////////////////////////////////////////////////////////////////////
	function getURLVarFromScript(name){
		var regexp = new RegExp("[?|&]" + name + "(?:=([^&]*))?", "i");
		var res =
regexp.exec(decodeURIComponent(dom.jquery("#OPTSmartBannerScript").attr("
src")));
		if(res === null)
			return undefined;
		return res[1] || "";
	}

	//////////////////////////////////////
	// Get viewport width and height //
	//////////////////////////////////////
	function getViewportWidth() {
		var e = document.documentElement || document.body;
		var a = 'client';
		//console.log('window[innerWidth]' + window["innerWidth"] +
'**e.tagName: ' + e.tagName + '**document.documentElement[clientWidth]: ' +
document.documentElement["clientWidth"] + '**document.body[clientWidth]: '
+ document.body["clientWidth"] + '**width : e[ ' + a + 'Width ]');
		return { width : e[ a+'Width' ] , height : e[ a+'Height' ] };
	}

	//////////////////////////////////////////////////////////////////////////////////////
	// Decrease the container text font-size if the container width exceeds
maxwidth //
	//////////////////////////////////////////////////////////////////////////////////////
```

```
	function shrinkTextIfNeeded(container, maxwidth) {
		if (dom.jquery(container).width() > maxwidth) {
			dom.jquery(container).css("font-size", "-=1");
			shrinkTextIfNeeded(container, maxwidth);
		}
	}

	dom.jquery(document).ready(
		function() {

			// Redmine #36691: Use the variable "version" to avoid minify
tools remove it
			// Redmine #38451: Move console.log to "ready" function
			console.log(version);

			// Avoid several icons when the host webpage is composed of
several frames
			for(var i=0; i<window.parent.frames.length; ++i) {
				try {

if(window.parent.frames[i].document.getElementById("OPTSmartBannerScript"))
{
						if(window.parent != window)
							return;
			else
			   if( document.getElementById(IconVodafoneContainerId) )
return;
					}
				} catch (ex) { }
			}

			dom.jquery("head").append(
				'<style id="' + IconVodafoneStylesheetId + '"
type="text/css">' +
				'html{box-sizing:border-box;-moz-box-sizing:border-box;}' +
				'div#' + IconVodafoneContainerId + ' {' +
				'	display: none;' +
				'	height: 5px;' +
				//Redmine: 42689
				'	box-sizing:content-box;' +
				'	padding-left: 10px !important;' +
				'	padding-right: 10px !important;' +
				'	margin: 0px auto;' +
				'	overflow:visible;' +
				'	position: absolute;' +
				'	top: 0px !important;' +
				'	width	: ' + getIconContainerWidth() + 'px;' +
				'	z-index: 2147483647 !important;' +
				'	font-size: 13px !important;' +
				'}' +
				' div#' + IconVodafoneContainerId + ' * {' +
				'	background: none;' +
				'	border: none !important;' +
				'	float: none !important;' +
```

```
                        '    font-size: 90%;' +
                        '    font-family: Arial, Helvetica, sans-serif !important;' +
                        '    font-weight: normal !important;' +
                        '    left:auto;' +
                        '    line-height: 2ex !important;' +
                        '    letter-spacing:0;' +
                        '    margin: 0 !important;' +
                        '    outline:none !important;' +
                        '    padding: 0 !important;' +
                        '    text-decoration: none !important;' +
                        '        text-transform: none !important;' +
                        '    text-shadow:none !important;' +
                        '    vertical-align:middle !important;' +
                        '    white-space:nowrap !important;' +
                        '    z-index: 2147483647 !important;' +
                        '    zoom: 1;' +
                        '}' +
                        ' div#' + IconVodafoneContainerId + ' td {' +
                        '    text-align: left !important;' +
                        '}' +
                        ' div#' + IconVodafoneContainerId  + ' {' +
                        '    bottom       : 0;' +
                        '    clear        : both !important;' +
                        '    margin-bottom: 10px !important;' +
                        //inigo'    margin-right : 13px !important;' +
                        //                '    position     : absolute !important;' +
                        //'    width        : 100% !important;' +
                        '}' +
                        ' div#' + IconVodafoneButtonBarId + ', div#' +
adcontrolstatusId + ' {' +
                        '    bottom       : 0;' +
                        '    clear        : both !important;' +
                        '    margin-bottom: 0px !important;' +
                        '    margin-right : 13px !important;' +
                        //                '    position     : absolute !important;' +
                        '    width        : 96% !important;' +
                        '}' +
                        ' div#' + IconVodafoneContainerId + '  button {' +
                        '    cursor              : pointer' +
                        '    display             : inline !important;' +
                        '    margin              : 10px 2px !important;' +
                        '    padding             : 5px 10px !important;' +
                        '}' +
                        ' div#' + IconVodafoneContainerId + '  button img {' +
                        '    margin              : 0 5px 0 0 !important;' +
                        '}' +
                        ' div#' + IconVodafoneContainerId + '  button span {' +
                        '    font-size           : 1.8em;' +
                        '    font-weight         : bold !important;' +
                        '    line-height         : 1em !important;' +
                        '}' +
                        ' div#' + IconVodafoneContainerId + ' .' +
IconVodafoneBoxGrayClass + ' {' +
```

```
                        '    background          : -moz-linear-gradient(top, #FDFDFD
0%, #E9E9E9 100%) !important;' +
                        '    background          : -webkit-gradient(linear, left top, left
bottom, color-stop(0%,#FDFDFD), color-stop(100%,#E9E9E9)) !important;' +
                        '    background          : -webkit-linear-gradient(top, #FDFDFD
0%,#E9E9E9 100%) !important;' +
                        '    background          : -o-linear-gradient(top, #FDFDFD
0%,#E9E9E9 100%) !important;' +
                        '    background          : -ms-linear-gradient(top, #FDFDFD
0%,#E9E9E9 100%) !important;' +
                        '    background          : linear-gradient(top, #FDFDFD
0%,#E9E9E9 100%) !important;' +
                        '    filter              :
progid:DXImageTransform.Microsoft.gradient(startColorstr="#FDFDFD",
endColorstr="#E9E9E9",GradientType=0) !important;' +
                        '    border              : #AFAFAF solid 1px !important;' +
                        '    -moz-border-radius   : 3px;' +
                        '    -ms-border-radius    : 3px;' +
                        '    -o-border-radius     : 3px;' +
                        '    -webkit-border-radius: 3px;' +
                        '    border-radius        : 3px;' +
                        '    color               : black;' +
                        '    font-weight          : bold !important;' +
                        '    width               : 95%  !important;' +
                        '    text-align           : center !important;' +
                        '}' +
                        ' div#' + IconVodafonePanelId + ', div#' +
IconVodafonePanel2Id + ' {' +
                        '    background-repeat: repeat-x !important;' +
                        '    background-position: 0 100% !important;' +
                        '    background-color: #ffffff !important;' +
                        '    -moz-box-sizing: content-box;' +
                        '    -moz-box-shadow:    0 5px 5px 5px #ccc;' +
                        '    -ms-box-shadow:     0 5px 5px 5px #ccc;' +
                        '    -o-box-shadow:      0 5px 5px 5px #ccc;' +
                        '    -webkit-box-shadow: 0 5px 5px 5px #ccc;' +
                        '    text-shadow: 0 1px 0 rgba(255, 255, 255, .8);' +
                        '    -moz-border-radius-bottomright: 5px;' +
                        '    -moz-border-radius-bottomleft: 5px;' +
                        '    -ms-border-radius-bottomright: 5px;' +
                        '    -ms-border-radius-bottomleft: 5px;' +
                        '    -o-border-radius-bottomright: 5px;' +
                        '    -o-border-radius-bottomleft: 5px;' +
                        '    -webkit-border-radius-bottomright: 5px;' +
                        '    -webkit-border-radius-bottomleft: 5px;' +
                        '    color: #999999;' +
                        '    display: none;' +
                        '    overflow: hidden !important;' +
                        '    position: relative !important;' +
                        '    white-space: nowrap !important;' +
                        '    width: 100%;' +
                        '    height: auto;' +
                        '}' +
```

```
                        ' div#' + IconVodafoneWholeId + ', div#' +
IconVodafonePanel2Id + ' {' +
                        '    text-align: left !important;' +
                        '}' +
                        ' div#' + IconVodafonePanelId + ', div#' +
IconVodafonePanel2Id + ' div.' + IconVodafonePanelLeftId + ', div#' +
IconVodafonePanelId + ' {' +
                        '    overflow-x:hidden !important;' +
                        '    overflow-y:auto !important;' +
                        '    position: absolute;' +
                        '    top: 0px !important;' +
                        '    width: 100% !important;' +
                        '    white-space:nowrap;' +
                        '}' +
                        ' div#' + IconVodafonePanelId + ', div#' +
IconVodafonePanel2Id + ' .' + IconVodafonePanelLeftClass + ' {' +
                        '    left: 0 !important;' +
                        '}' +
                        ' div#' + IconVodafoneContainerId + ' div#' +
IconVodafoneRedId + ' {' +
                        '    overflow:visible !important;' +
                        '    cursor: pointer' +
                        '}' +
                        ' img#' + iconbarimageId + ', img#' + iconbariconId + ',
img#' + iconbarbgId + ' {' +
                        '    box-shadow : none !important;' +
                        '    display    : inline !important;' +
                        '}' +
                        ' div#' + IconVodafoneContainerId + ' span {' +
                        '       white-space: -moz-pre-wrap !important;' +  /* Mozilla,
since 1999 */
                        '       white-space: -pre-wrap !important;' +      /* Opera 4-6 */
                        '       white-space: -o-pre-wrap !important;' +    /* Opera 7 */
                        '       white-space: pre-wrap !important;' +       /* css-3 */
                        '       word-wrap: break-word !important;' +       /* Internet
Explorer 5.5+ */
                        '       white-space: normal !important;' +
                        '}' +
                        ' img#' + iconCBimage + ' {' +
                        '    box-shadow : none !important;' +
                        '    display    : inline !important;' +
                        '}' +
                        ' img#' + adcontrolimage + ' {' +
                        '    box-shadow : none !important;' +
                        '    display    : inline !important;' +
                        '}' +
                        ' img#' + iconChevronImage + ' {' +
                        '    box-shadow : none !important;' +
                        '    display    : inline !important;' +
                        '}' +
                        ' svg { ' +
                        '       display         : inline !important;' +
                        '}' +
                        '</style>'
```

```
                    );

                    var closeIcon = '<?xml version="1.0" encoding="UTF-8"
standalone="no"?>' +
                                        '<svg width="24px" height="24px"
viewBox="0 0 24 24" version="1.1" xmlns="http://www.w3.org/2000/svg"
xmlns:xlink="http://www.w3.org/1999/xlink">' +
                                        '      <!-- Generator: Sketch 41.2 (35397) -
http://www.bohemiancoding.com/sketch -->' +
                                        '      <title>ic_close_24</title>' +
                                        '      <desc>Created with Sketch.</desc>' +
                                        '      <defs/>' +
                                        '      <g id="Page-1" stroke="none" stroke-
width="1" fill="none" fill-rule="evenodd">' +
                                        '            <g id="web_companion"
transform="translate(-316.000000, -93.000000)">' +
                                        '                  <g id="Group"
transform="translate(10.000000, 81.000000)">' +
                                        '                        <g id="close-r:10"
transform="translate(306.000000, 12.000000)">' +
                                        '                              <g id="ICON-/-
CLOSE">' +
                                        '                                    <rect
id="Rectangle-path" x="0" y="0" width="24" height="24"/>' +
                                        '                                    <path
d="M3.14644661,3.85355339 L20.1464466,20.8535534
C20.3417088,21.0488155 20.6582912,21.0488155 20.8535534,20.8535534
C21.0488155,20.6582912 21.0488155,20.3417088 20.8535534,20.1464466
L3.85355339,3.14644661 C3.65829124,2.95118446 3.34170876,2.95118446
3.14644661,3.14644661 C2.95118446,3.34170876 2.95118446,3.65829124
3.14644661,3.85355339 Z" id="c33595e8-181e-4076-a9f0-227b8fdd48ef"
fill="#757575"/>' +
                                        '                                    <path
d="M3.85355339,20.8535534 L20.8535534,3.85355339
C21.0488155,3.65829124 21.0488155,3.34170876 20.8535534,3.14644661
C20.6582912,2.95118446 20.3417088,2.95118446 20.1464466,3.14644661
L3.14644661,20.1464466 C2.95118446,20.3417088 2.95118446,20.6582912
3.14644661,20.8535534 C3.34170876,21.0488155 3.65829124,21.0488155
3.85355339,20.8535534 Z" id="56502c87-b986-44ba-a730-3fc53d646431"
fill="#757575"/>' +
                                        '                              </g>' +
                                        '                        </g>' +
                                        '                  </g>' +
                                        '            </g>' +
                                        '      </g>' +
                                        '</svg>';

                    var configIcon = '<?xml version="1.0" encoding="UTF-8"
standalone="no"?>' +
                                              '<svg width="32px" height="32px"
viewBox="0 0 32 32" version="1.1" xmlns="http://www.w3.org/2000/svg"
xmlns:xlink="http://www.w3.org/1999/xlink">' +
                                              '      <!-- Generator: Sketch 41.2
(35397) - http://www.bohemiancoding.com/sketch -->' +
```

'	<title>ic_settings_32</title>' +
'	<desc>Created with Sketch.</desc>' +
'	<defs/>' +
'	<g id="Page-1" stroke="none" stroke-width="1" fill="none" fill-rule="evenodd">' +
'		<g id="web_companion" transform="translate(-20.000000, -287.000000)">' +
'		<g id="Group" transform="translate(10.000000, 271.000000)">' +
'		<g id="I:10" transform="translate(10.000000, 16.000000)">' +
'		<g id="ICON-/-SETTINGS">' +
'		<rect id="Rectangle-path" x="0" y="0" width="32" height="32"/>' +
'		<path d="M25.0922838,25.7300764 C25.4087752,25.9135711 25.8140128,25.8077373 26.0003621,25.4929183 L29.1770288,20.1262516 C29.3657527,19.8074211 29.2583115,19.3958756 28.9378211,19.2099844 L26.156838,17.5969561 C26.3135826,16.608978 26.3229272,15.6031727 26.1845586,14.6124367 L28.9955465,13.018232 C29.317851,12.8354424 29.4292652,12.4249103 29.2435891,12.10426 L26.1185891,6.70759332 C25.9352812,6.3910328 25.5311287,6.28130771 25.2128999,6.46170387 L22.4241487,8.04257901 C21.6284367,7.40948084 20.7436101,6.89728752 19.7983333,6.52258634 L19.7983333,3.33333333 C19.7983333,2.9651435 19.4998565,2.66666667 19.1316667,2.66666667 L12.8466667,2.66666667 C12.4784768,2.66666667 12.18,2.9651435 12.18,3.33333333 L12.18,6.50897613 C11.248259,6.87422091 10.3745571,7.37305083 9.58638216,7.98977895 L6.85114998,6.4033152 C6.53485808,6.21986253 6.12982362,6.32540673 5.94328365,6.63988772 L2.75995032,12.0065544 C2.57070405,12.3255978 2.67828047,12.7377588 2.99930915,12.9236175 L5.7642473,14.5243712 C5.61879259,15.505883 5.61859908,16.5034848 5.76366676,17.4850394 L3.00388892,19.0537552 C2.68198339,19.2367331 2.5708621,19.6469762 2.75641094,19.9674067 L5.88141094,25.3640733 C6.06445055,25.6801705 6.46777068,25.790116 6.78590426,25.6106391 L9.59733148,24.024556 C10.3844729,24.6394252 11.2566947,25.1368051 12.1866667,25.5011295 L12.1866667,28.6666667 C12.1866667,29.0348565 12.4851435,29.3333333 12.8533333,29.3333333 L19.1383333,29.3333333 C19.5065232,29.3333333 19.805,29.0348565 19.805,28.6666667 L19.805,25.5816277 C20.8259962,25.3588124 21.7892011,24.9233752 22.6314258,24.3033253 L25.0922838,25.7300764 Z M13.52,28 L13.52,25.035 C13.52,24.7492586 13.3379031,24.495292 13.0672749,24.4035941 C11.9795327,24.0350304 10.9724865,23.4614565 10.1006059,22.7138961 C9.8877114,22.5313579 9.5833438,22.501567 9.33909574,22.6393609 L6.70491462,24.1254496 L4.24701409,19.8808192 L6.82944442,18.4129115 C7.07880611,18.271169 7.20955322,17.9858156 7.15407994,17.7043997 C6.93309905,16.583364 6.93309905,15.4299694 7.15407994,14.3089336 C7.20917764,14.029423 7.08057485,13.745789 6.83402418,13.6030491 L4.25044785,12.1072944 L6.75325052,7.88790983 L9.31718335,9.37501813 C9.5626087,9.51736744 9.87124069,9.48878871 10.0863546,9.30379432 C10.9598685,8.55258705 11.9696568,7.97631766 13.0607436,7.60636006 C13.3313023,7.51462099 13.5133333,7.26068885 13.5133333,6.975 L13.5133333,4 L18.465,4 L18.465,6.98666667 C18.465,7.27136307

```
18.6457885,7.52464335 18.915035,7.61715472 C20.0172453,7.99586705
21.0354078,8.58505217 21.9129661,9.3519823 C22.1262459,9.53837527
22.4340217,9.56964762 22.6804335,9.42996279 L25.2957669,7.94739396
L27.7526578,12.1902808 L25.1227868,13.681768 C24.8748619,13.8223745
24.7437476,14.1050396 24.7965322,14.3851303 C25.009532,15.5153702
24.9984792,16.67644 24.7640013,17.8024201 C24.7054271,18.083698
24.8336474,18.3708621 25.0821789,18.5150156 L27.6870302,20.0258838
L25.1894989,24.2452178 L22.9093829,22.923257 C22.6665204,22.7824507
22.3614728,22.8088711 22.1464359,22.9893365 C21.2636989,23.7301557
20.1894978,24.206305 19.0477743,24.362846 C18.7176678,24.4081067
18.4716667,24.6901384 18.4716667,25.0233333 L18.4716667,28 L13.52,28 Z
M21.3219224,15.6533157 C21.1477839,12.9810182 19.0189818,10.8522161
16.3466843,10.6780776 C14.1309295,10.5336895 12.0575363,11.7772317
11.141521,13.7999361 C10.2255057,15.8226405 10.6585424,18.2012611
12.2286406,19.7713594 C13.7987389,21.3414576 16.1773595,21.7744943
18.2000639,20.858479 C20.2227683,19.9424637 21.4663105,17.8690705
21.3219224,15.6533157 Z M17.6500171,19.6438901 C16.1329888,20.3309015
14.3490234,20.006124 13.1714497,18.8285503 C11.993876,17.6509766
11.6690985,15.8670112 12.3561099,14.3499829 C13.0431214,12.8329546
14.5981663,11.9002979 16.2599824,12.008589 C18.2642055,12.1391929
19.8608071,13.7357945 19.991411,15.7400176 C20.0997021,17.4018337
19.1670454,18.9568786 17.6500171,19.6438901 Z" id="Combined-Shape"
fill="#757575"/>' +
                                                '                                </g>' +
                                                '                            </g>' +
                                                '                        </g>' +
                                                '                    </g>' +
                                                '            </g>' +
                                                '</svg>';

                    var chevronIcon = '<?xml version="1.0" encoding="UTF-8"
standalone="no"?>' +
                                                '<svg width="24px" height="24px"
viewBox="0 0 24 24" version="1.1" xmlns="http://www.w3.org/2000/svg"
xmlns:xlink="http://www.w3.org/1999/xlink">' +
                                                '    <!-- Generator: Sketch 41.2
(35397) - http://www.bohemiancoding.com/sketch -->' +
                                                '    <title>ic_chevron_24</title>' +
                                                '    <desc>Created with
Sketch.</desc>' +
                                                '    <defs/>' +
                                                '    <g id="Symbols" stroke="none"
stroke-width="1" fill="none" fill-rule="evenodd">' +
                                                '            <g id="ICON-/-CHEVRON-
RIGHT">' +
                                                '                <g id="Group-2">' +
                                                '                        <rect
id="Rectangle-path" transform="translate(12.000000, 12.000000) rotate(-
90.000000) translate(-12.000000, -12.000000) " x="0" y="0" width="24"
height="24"/>' +
                                                '                        <polyline
id="259e14f8-3d8b-4ae1-b945-69f9c598b490" stroke="#757575" stroke-
linecap="round" stroke-linejoin="round" points="7.75 3.5 16.25 12 7.75 20.5"/>'
+
```

```
                                                    '                    </g>' +
                                                    '              </g>' +
                                                    '       </g>' +
                                                    '</svg>';

                    dom.jquery('body').prepend('<div id="' +
IconVodafoneContainerId + '" style="position:absolute;top:0px;left:0px;z-
index:2147483647;display:block;min-height:5px;direction:ltr;-webkit-transform:
translate3d(0, 0, 0);">'  +
                        '<div id="' + IconVodafoneWholeId + '">'  +
                    '<div id="' + IconVodafoneRedId + '"   style="background:
#E60000 !important;"></div>'  +
                    '<div id="' + iconbarId + '" style="cursor: pointer; position:
absolute; top: 0px !important;">'  +
                        '<div id="' + iconbarbgId + '" style="max-width:none !
important; position: absolute; top: 0px !important;" />'  +
                    '<div id="' + iconbarimageId + '" style="max-width:none !
important; position: absolute; top: 0px !important;" />'  +
                    '</div></div>'  +
                    '<div id="' + IconVodafonePanelId + '" style="height: auto; -
moz-box-sizing: content-box !important;">'  +
                    '<div id="' + IconVodafonePanelLinksId + '" style="margin-
right: 13px !important; width: 96% !important;">'  +
                    '<div class="' + IconVodafonePanelLeftClass + '" id="' +
IconVodafonePanelLeftId + '">'  +
                        '<div id="' + IconVodafonePopularId + '">'  +
                    '<div style="margin-left: 10px ! important; padding-top: 7px !
important; ">'  +

                        '<div style="display:inline-block !important; float:left !
important">'  +
                                '<div id="' + iconbariconId + '" style="display: inline;
width: 64px; height: 64px;" />' +
                                '<span style="font-size: 20px !important; font-weight:
bold !important; padding-left:10px !important; letter-spacing: 0.14px; color:
#313131 !important;">'  +
                                overlayText.header + '</span>'  +
                        '</div>' +

                        '<div style="width: 24px; height:24px; display:inline !
important; float:right !important; padding-top:3px !important">' +
                                closeIcon +
                        '</div>' +
                        '<div style="float: clear !important;"></div>' +
                    '</div>'  +
                    '<div id="' + IconVodafoneTabId + '" style="float:left !
important; display:block !important;background: none repeat scroll 0px 0px
#EBEBEB ! important; cursor: auto; height: 1px !important; margin-top: 8px !
important; width: 100% ! important; margin-left: 0px !important;">'  +
                    '</div>'  +
                    '</div>'  +
                    '</div>'  +
                    '</div>'  +
                    '</div>'  +
```

```
                    '<div id="' + IconVodafonePanel2Id + '" style="-moz-box-
sizing: content-box !important;">'  +
                    '<div id="' + IconMainHeaderIconId + '" style="min-height:
60px important!; padding-top: 14px ! important; z-index: 1;  padding-bottom:
15px !important; padding-left: 10px !important;">'  +
                    '<span style="font-size: 16px !important; color:#333333 !
important; letter-spacing: 0.11px !important;">'  +
                    overlayText.protectionLevelTitle + '</span>'  +
                    '<span id="' + protectionlevelId + '" style="font-size: 16px !
important;color:#333333 !important;letter-spacing: 0.11px
!important;"></span>'  +
                    '<table id="' + IconVodafoneProtectionLevelTableId + '"
cellspacing="0" style="width:100% !important" width="100%">'  +
                    '<tr><td colspan="5" style="padding-bottom: 10px !
important;">'  +
                    '<tr style="display:table-row;">'  +
                    '<td width="5%" id="' + lowId + '" style="display:table-cell;
border-top-left-radius: 2px; border-bottom-left-radius: 2px;"> </td>'  +
                    '<td width="40%" id="' + mediumId + '" style="display:table-
cell;"> </td>'  +
                    '<td width="45%" id="' + strongId + '" style="display:table-
cell;border-top-right-radius: 2px; border-bottom-right-radius:
2px;"> </td>'  +
                    '<td width="5%" id="' + finId + '" style="display:table-
cell;"> </td>'  +
                    '</tr>'  +
                    '</table>'  +
                    '</div>'  +
                      '<div id="' + IconVodafoneTabIdHM + '" style="float:left !
important; display:block !important;background: none repeat scroll 0px 0px
#EBEBEB ! important; cursor: auto; height: 1px !important; margin-top: 0px !
important; width: 100% ! important; margin-left: 0px !important;">'  +
                      '</div>' +

                      '<div style="min-height: 62px !important; min-height:78px !
important; padding-top: 11px ! important; z-index: 1; padding-left: 10px !
important; padding-right:10px !important;" id="' + explanationTextId + '">' +
                      '<span style="font-size: 16px !important;color: #333333 !
important; letter-spacing: 0.11px !important;">' +
overlayText.explanationTextHeader + '</span>' +
                      '</br>' + '</br>' +
                      '<span style="font-size: 14px !important; color: #666666 !
important; letter-spacing: 0.1px !important; line-height: 18px !important;">' +
overlayText.explanationTextBody + '</span>' +
                      '</div>' +

                      '<div id="' + IconVodafoneButtonBarId + '" style="min-
height: 64px !important; padding-left: 10px !important; padding-top: 16px !
important; padding-bottom: 16px !important; ">'  +
                      '<div style="display:inline-block !important; float: left !
important;">' +
                      '<div id="' + iconCBimage + '" style="display: inline; width:
32px; height: 32px; text-align: left;"></div>' +
```

```
                        '<span '+ '" id="' + IconVodafoneStatsId + '" style="font-
size: 16px !important; padding-left: 10px !important; color: #333333 !important;
letter-spacing: 0.11px !important; width: 244px !important;">' +
overlayText.settingsButton + '</span>'  +
                        '</div>' +
                        '<div id="' + iconChevronImage + '" style="display: inline;
width: 24px; height: 24px; padding-top: 4px !important; float: right !important;
cursor: pointer !important;"></div>' +
                        '</div>' +

                        '<div id="' + adcontrolstatusId + '" style="min-height: 64px
important!; padding-left: 10px !important; padding-top: 16px !important;
padding-bottom: 23px !important; ">'  +
                        '<div id="' + adcontrolimage + '" style="display: inline;
width: 32px; height: 32px; text-align: left;"></div>' +
                        '<span '+ '" id="' + adcontrolstatustextId + '" style="font-
size: 16px !important; padding-left: 10px !important; color: #333333 !important;
letter-spacing: 0.11px !important; display: inline-block !important; width: 244px !
important;">' + overlayText.adcontrolStatusUndef + '</span>'  +
                        '<br />' +
                        '<a id="' + adcontrollinkId + '" href="#" style="font-size:
14px !important; color:#666666 !important; letter-spacing: 0.1px !important;
line-height: 18px !important; padding-left: 40px !important; text-decoration:
underline !important;">' + overlayText.adcontrolLinkTextUndef + '</a>' +
                        '</div>' +

                        '<div id="' + adcontrolstatsId + '" style="padding-top:
10px !important; z-index: 1;  padding-bottom: 10px !important; padding-left:
10px !important;">' +
                      '<span id="' + adcontrolstatstextId + '" style="font-size:
1.4em !important; color:#000000 !important; padding-top: 20px !important;
padding-left: 10px !important;">'  +
                        overlayText.adcontrolBlockedBanners + '</span>' +
                        '<span id="' + adcontrolnumberblockedbannersId + '"
style="font-size: 1.4em !important; color:#000000 !important; padding-top:
20px !important; font-weight: bold !important;">'  +
                        '</span><br>' +
                        '<a id="' + adcontrolstatslinkId + '" style="font-size:
1.4em !important; color:#000000 !important;text-decoration: underline !
important;font-style:italic !important;" href="#" onclick="location.reload(true);
return false;">' + overlayText.blockedBannersTimeoutWarning + '</a>' +
                        '<br />' + '<br />' +
                        '</div>' +

                      /*'<div id="' + IconVodafoneTabId + '" style="background:
#FFFFFF !important;"></div>'  +
                      '<div id="' + IconVodafoneTabLineId + '" style="background:
none repeat scroll 0 0 #666666 !important; cursor: auto; height: 1px ! important;
margin-top: 1px ! important; width: 12px ! important; margin-left: 5px !
important; cursor: pointer;"></div>'  +
                      '<div id="' + IconVodafoneGreyFullId + '" style="background:
none repeat scroll 0 0 #AFAFAF !important; cursor: auto; height: 4px ! important;
margin-top: 2px ! important; width: 100% ! important; margin-left: 0px !
important; cursor: pointer;"></div>' +
```

```
                    '</div>'  +*/
                    '</div>'
                );

                if( !showExplanationTextModule ) {
                        dom.jquery('#' + explanationTextId).hide();
                }

                if( showConfigButtonModule ){
                        dom.jquery("#" + iconCBimage).append(configIcon);
                        dom.jquery("#" + iconCBimage + " svg").css("width",
"32px").css("height", "32px");
                        dom.jquery("#" + iconChevronImage).append(chevronIcon);
                        dom.jquery("#" + iconChevronImage + " svg").css("width",
"24px").css("height", "24px");

                } else {
                        dom.jquery('#' + IconVodafoneButtonBarId).hide();
                }

                if( !showAdManagementModule ) {
                        dom.jquery('#' + adcontrolstatusId).hide();
                }

                // Redmine #37468: Force left alignment of "Vodafone Secure
Net" header just for non-rtl webpages.
                /*if(dom.jquery("body").css("direction") != "rtl")
                        dom.jquery("#" + IconVodafonePopularId + " *").css("text-
align", "left", "important");*/

                // Make the icon draggable
                dom.jquery("#" + iconbarId).drags();

                // Definition of SVG format of images
                                        var redIconUnfolded = '<?xml
version="1.0" encoding="UTF-8"?>' +
                                                                                '<s
vg width="111px" height="111px" viewBox="0 0 111 111" version="1.1"
xmlns="http://www.w3.org/2000/svg"
xmlns:xlink="http://www.w3.org/1999/xlink">' +
                                                                                '<t
itle>logo_unfolded_new</title>' +
                                                                                '
        <g id="logo_unfolded_new" stroke="none" stroke-width="1" fill="none"
fill-rule="evenodd">' +
                                                                                '
                <g id="shield" transform="translate(5.000000, 6.000000)" fill-
rule="nonzero">' +
                                                                                '
                        <path d="M48.1661582,4.10276836
C21.529548,20.7649153 5.13559322,6.17983051 5.13559322,14.5166102
C5.13559322,71.0594915 42.0376836,90.0840113 49.0734463,93.1938983
C49.8011327,93.5114867 50.6282459,93.5114867 51.3559322,93.1938983
C58.3859887,90.0840113 95.2937853,71.0594915 95.2937853,14.5166102
```

```
C95.2937853,6.15700565 78.8998305,20.7934463 52.2632203,4.10276836
C51.0100045,3.31892931 49.4193741,3.31892931 48.1661582,4.10276836 Z"
id="Shape" fill="#E60000"></path>' +
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                
                        <path d="M50.2146893,3.50912717
C49.4919095,3.5041407 48.7821731,3.70183886 48.1661582,4.0799435
C21.529548,20.7649153 5.13559322,6.17983051 5.13559322,14.5166102
C5.13559322,71.0594915 42.0376836,90.0840113 49.0734463,93.1938983
C49.4328847,93.3534664 49.82143,93.4370037 50.2146893,93.4392655
L50.2146893,3.50912717 Z" id="Shape" fill="#B20000"></path>' +
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                
                        <path d="M48.1661582,5.23830508
C49.4201536,4.45718696 51.009225,4.45718696 52.2632203,5.23830508
C78.5745763,21.6836158 94.8829379,7.6520339 95.2937853,15.3554237
C95.2937853,15.0758192 95.2937853,14.7848023 95.2937853,14.510904
C95.2937853,6.15129944 78.8998305,20.7877401 52.2632203,4.09706215
C51.009225,3.31594402 49.4201536,3.31594402 48.1661582,4.09706215
C21.529548,20.7649153 5.13559322,6.17983051 5.13559322,14.5166102
C5.13559322,14.8019209 5.13559322,15.0872316 5.13559322,15.3611299
C5.54644068,7.68056497 21.8605085,21.6836158 48.1661582,5.23830508 Z"
id="Shape" fill="#FFFFFF" opacity="0.2"></path>' +
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                
                        <path d="M51.3559322,92.0526554
C50.6282459,92.3702437 49.8011327,92.3702437 49.0734463,92.0526554
C42.0776271,88.9541808 5.52361582,70.1065537 5.13559322,14.2655367
C5.13559322,14.3568362 5.13559322,14.4481356 5.13559322,14.539435
C5.13559322,71.0823164 42.0376836,90.1068362 49.0734463,93.2167232
C49.8011327,93.5343115 50.6282459,93.5343115 51.3559322,93.2167232
C58.3859887,90.1068362 95.2937853,71.0823164 95.2937853,14.539435
C95.2937853,14.4424294 95.2937853,14.3511299 95.2937853,14.2655367
C94.9114689,70.1065537 58.3574576,88.9541808 51.3559322,92.0526554 Z"
id="Shape" fill="#1D1D1B" opacity="0.2"></path>' +
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                
                  </g>' +
                                                                                                                                                                                                                                                                                                                                                
         </g>' +
                                                                                                                                                                                                                                                                                                                                                
'</
svg>';

                                                var redIconFolded = '<?xml version="1.0"
encoding="UTF-8"?>' +
                                                                                                                                                                                                                                                                                                                                                
'<s
vg width="115px" height="113px" viewBox="0 0 115 113" version="1.1"
xmlns="http://www.w3.org/2000/svg"
xmlns:xlink="http://www.w3.org/1999/xlink">' +
                                                                                                                                                                                                                                                                                                                                                
<title>logo_folded_new</title>' +
                                                                                                                                                                                                                                                                                                                                                
<g id="logo_folded_new" stroke="none" stroke-width="1" fill="none" fill-
rule="evenodd">' +
                                                                                                                                                                                                                                                                                                                                                
<g id="Shape">' +
                                                                                                                                                                                                                                                                                                                                                
<path d="M0,0 L115,0 L115,56 C115,86.927946 89.927946,112 59,112 L56,112
```

```
C25.072054,112 3.78758101e-15,86.927946 0,56 L0,0 L0,0 Z" id="Fill"
fill="#FFFFFF"></path>' +
                                                                              '
<path d="M115,0 L115,56 C115,86.927946 89.927946,112 59,112 L56,112
C25.072054,112 0,86.927946 0,56 L0,0 L115,0 Z M113,2 L2,2 L2,56
C2,85.5251427 25.6955087,109.515903 55.1070113,109.992766 L56,110
L59,110 C88.5251427,110 112.515903,86.3044913 112.992766,56.8929887
L113,56 L113,2 Z" id="Outline" fill="#979797" fill-rule="nonzero"></path>' +
                                                                              '
<polygon id="Red-Stroke" fill="#E60000" fill-rule="nonzero" points="115 0 115
5 0 5 0 0"></polygon>' +
                                                                              '
</g>' +
                                                                              '
<g id="shield" transform="translate(16.000000, 15.000000)" fill-
rule="nonzero">' +
                                                                              '
<path d="M39.5820904,3.37158192 C17.6925989,17.0642373
4.22033898,5.07847458 4.22033898,11.9294915 C4.22033898,58.3954237
34.5458192,74.029435 40.3276836,76.5850847 C40.9256833,76.8460732
41.6053902,76.8460732 42.2033898,76.5850847 C47.980565,74.029435
78.3107345,58.3954237 78.3107345,11.9294915 C78.3107345,5.05971751
64.8384746,17.0876836 42.9489831,3.37158192 C41.9191126,2.72743695
40.6119609,2.72743695 39.5820904,3.37158192 Z" id="Shape"
fill="#E60000"></path>' +
                                                                              '
<path d="M41.2655367,2.88373817 C40.6715692,2.87964037
40.0883205,3.0421052 39.5820904,3.35282486 C17.6925989,17.0642373
4.22033898,5.07847458 4.22033898,11.9294915 C4.22033898,58.3954237
34.5458192,74.029435 40.3276836,76.5850847 C40.6230637,76.716215
40.9423633,76.7848644 41.2655367,76.7867232 L41.2655367,2.88373817 Z"
id="Shape" fill="#B20000"></path>' +
                                                                              '
<path d="M39.5820904,4.30474576 C40.6126014,3.66283681
41.918472,3.66283681 42.9489831,4.30474576 C64.5711864,17.819209
77.9731073,6.28830508 78.3107345,12.6188136 C78.3107345,12.3890395
78.3107345,12.149887 78.3107345,11.9248023 C78.3107345,5.05502825
64.8384746,17.0829944 42.9489831,3.36689266 C41.918472,2.7249837
40.6126014,2.7249837 39.5820904,3.36689266 C17.6925989,17.0642373
4.22033898,5.07847458 4.22033898,11.9294915 C4.22033898,12.1639548
4.22033898,12.3984181 4.22033898,12.6235028 C4.5579661,6.31175141
17.9645763,17.819209 39.5820904,4.30474576 Z" id="Shape" fill="#FFFFFF"
opacity="0.2"></path>' +
                                                                              '
<path d="M42.2033898,75.6472316 C41.6053902,75.9082201
40.9256833,75.9082201 40.3276836,75.6472316 C34.5786441,73.1009605
4.53920904,57.6123164 4.22033898,11.7231638 C4.22033898,11.7981921
4.22033898,11.8732203 4.22033898,11.9482486 C4.22033898,58.4141808
34.5458192,74.0481921 40.3276836,76.6038418 C40.9256833,76.8648303
41.6053902,76.8648303 42.2033898,76.6038418 C47.980565,74.0481921
78.3107345,58.4141808 78.3107345,11.9482486 C78.3107345,11.8685311
78.3107345,11.7935028 78.3107345,11.7231638 C77.9965537,57.6123164
47.9571186,73.1009605 42.2033898,75.6472316 Z" id="Shape" fill="#1D1D1B"
opacity="0.2"></path>' +
```

```
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                
'
</g>' +
'
</g>' +
'</
svg>';

var adControlIcon = '<?xml version="1.0" encoding="utf-8"?>' +
'<svg width="32px" height="33px"
viewBox="0 0 32 33" version="1.1" xmlns="http://www.w3.org/2000/svg"
xmlns:xlink="http://www.w3.org/1999/xlink">' +
'<!-- Generator: Sketch 41.2 (35397) -
http://www.bohemiancoding.com/sketch -->' +
'	<title>ic_block</title>' +
'	<desc>Created with
Sketch.</desc>' +
'	<defs/>' +
'	<g id="Page-1" stroke="none"
stroke-width="1" fill="none" fill-rule="evenodd">' +
'		<g id="web_companion"
transform="translate(-20.000000, -364.000000)">' +
'		<g id="Group"
transform="translate(10.000000, 335.000000)">' +
'		<g id="block-l:10"
transform="translate(10.000000, 29.500000)">' +
'		<g id="ICON-/-
BLOCK">' +
'		<g>' +
'		<rect
id="Rectangle-path-@fullwidth-@fullheight" x="0" y="0" width="32"
height="32"/>' +
'		<g
id="Group-2" transform="translate(2.000000, 2.000000)" fill="#757575">' +
'		<path
d="M14,27.3333333 C21.3637967,27.3333333 27.3333333,21.3637967
27.3333333,14 C27.3333333,6.63620334 21.3637967,0.666666667
14,0.666666667 C6.63620334,0.666666667 0.666666667,6.63620334
0.666666667,14 C0.666666667,21.3637967 6.63620334,27.3333333
14,27.3333333 Z M14,26 C7.372583,26 2,20.627417 2,14 C2,7.372583
7.372583,2 14,2 C20.627417,2 26,7.372583 26,14 C26,20.627417 20.627417,26
14,26 Z" id="Combined-Shape"/>' +
'		<polygon
id="Shape" points="5.51473785 23.4280712 23.4280712 5.51473785
22.4852621 4.57192881 4.57192881 22.4852621"/>' +
'
</g>' +
'		</g>' +
'		</g>' +
'		</g>' +
'		</g>' +
'		</g>' +
'	</g>' +
'</svg>';
```

```
		// Append images to corresponding divs and set SVGs width and
height
		dom.jquery("#" + iconbarimageId).append(redIconFolded);
		dom.jquery("#" + iconbarbgId + " svg, #" + iconbarimageId + "
svg, #" + iconbarId).css("width",  "48px").css("height", "48px");
		dom.jquery("#" + iconbariconId).append(redIconUnfolded);
		dom.jquery("#" + iconbariconId + " svg").css("width",
"32px").css("height", "32px");

		// Tunning icon's width and height
		dom.jquery("#" + IconVodafoneRedId).css('height','200%');
		if((dom.jquery("#" + IconVodafoneRedId).css('height') == "0px")
|| (parseInt(dom.jquery("#" + IconVodafoneRedId).css('height')) > 2))
			dom.jquery("#" + IconVodafoneRedId).css('height',   '2px');

		// Redmine #37487: Determining icon width and height
depending on the configuration variables
		var iconSizeFactor;
		if((typeof iconSizeScreenPercentage === "undefined") ||
(iconSizeScreenPercentage < 1) || (iconSizeScreenPercentage > 100))
			iconSizeFactor = 100/7;
		else
			iconSizeFactor = 100/iconSizeScreenPercentage;
		var iconSize;
		if(getViewportWidth().width/iconSizeFactor < iconMinSizePx)
			iconSize = iconMinSizePx;
		else if(getViewportWidth().width/iconSizeFactor > iconMaxSizePx)
			iconSize = iconMaxSizePx;
		else
			iconSize = getViewportWidth().width/iconSizeFactor;

		dom.jquery("#" + iconbarimageId + " svg, #" + iconbarbgId + "
svg, #" + iconbarId)
			.css("width",  iconSize)
			.css("height", iconSize);

		dom.jquery("#" + IconVodafoneContainerId).css("width",
getIconContainerWidth() + "px");

		// Get the value of the parameters received from WebFilter
		var policystate, modality, view, uriAd, ui, policystateadsfree,
inadwhitelist, uriMutationRequest, uriAuditRequest;
		if(window.g_icon_parameters) { // Global variable does exist =>
New version of WebFilter
			if(window.g_icon_parameters.hasOwnProperty("policystate"))
				policystate = window.g_icon_parameters.policystate;
			else
				policystate = getURLVarFromScript('policystate');
			if(window.g_icon_parameters.hasOwnProperty("modality"))
				modality = window.g_icon_parameters.modality;
			else
				modality = getURLVarFromScript('modality');
			if(window.g_icon_parameters.hasOwnProperty("view"))
				view = window.g_icon_parameters.view;
```

```
                        else
                                view = getURLVarFromScript('view');
                        if(window.g_icon_parameters.hasOwnProperty("uriAd"))
                                uriAd = window.g_icon_parameters.uriAd;
                        else
                                uriAd = getURLVarFromScript('uriAd');
                        if(window.g_icon_parameters.hasOwnProperty("ui"))
                                ui = window.g_icon_parameters.ui;
                        else
                                ui = getURLVarFromScript("ui");

if(window.g_icon_parameters.hasOwnProperty("policystateadsfree"))
                                policystateadsfree =
window.g_icon_parameters.policystateadsfree;
                        else
                                policystateadsfree =
getURLVarFromScript("policystateadsfree");

if(window.g_icon_parameters.hasOwnProperty("inadwhitelist"))
                                inadwhitelist =
window.g_icon_parameters.inadwhitelist;
                        else
                                inadwhitelist = getURLVarFromScript("inadwhitelist");

if(window.g_icon_parameters.hasOwnProperty("uriMutationRequest"))
                                uriMutationRequest =
window.g_icon_parameters.uriMutationRequest;
                        else
                                uriMutationRequest =
getURLVarFromScript("uriMutationRequest");

if(window.g_icon_parameters.hasOwnProperty("uriAuditRequest"))
                                uriAuditRequest =
window.g_icon_parameters.uriAuditRequest;
                        else
                                uriAuditRequest =
getURLVarFromScript("uriAuditRequest");

if(window.g_icon_parameters.hasOwnProperty("uriObjectBlockedAdsFree"))
                                uriObjectBlockedAdsFree =
window.g_icon_parameters.uriObjectBlockedAdsFree;
                        else
                                uriObjectBlockedAdsFree =
getURLVarFromScript("uriObjectBlockedAdsFree");
                } else { // Global variable does NOT exist => Old version of
WebFilter
                        policystate = getURLVarFromScript('policystate');
                        modality = getURLVarFromScript('modality');
                        view = getURLVarFromScript('view');
                        uriAd = getURLVarFromScript('uriAd');
                        ui = getURLVarFromScript("ui");
                        policystateadsfree =
getURLVarFromScript("policystateadsfree");
                        inadwhitelist = getURLVarFromScript("inadwhitelist");
```

```
                        uriMutationRequest =
getURLVarFromScript("uriMutationRequest");
                        uriAuditRequest = getURLVarFromScript("uriAuditRequest");
                        uriObjectBlockedAdsFree =
getURLVarFromScript("uriObjectBlockedAdsFree");
                }

                // Protection level algorithm decision
        if(considerSSLInspectionForProtectionLevel) {
                        // Set protection level depending on the "policystate"
parameter
                        if(policystate == 259) {
                                dom.jquery("#" +
protectionlevelId).html(overlayText.protectionLevelHigh);
                                dom.jquery("#" + lowId).css('background-color',
'#A8B400');
                                dom.jquery("#" + mediumId).css('background-color',
'#A8B400');
                                dom.jquery("#" + strongId).css('background-color',
'#A8B400');
                        } else if((policystate == 0) || (policystate == 2)) {
                                dom.jquery("#" +
protectionlevelId).html(overlayText.protectionLevelLow);
                                dom.jquery("#" + lowId).css('background-color',
'red');
                                dom.jquery("#" + mediumId).css('background-color',
'grey');
                                dom.jquery("#" + strongId).css('background-color',
'grey');
                                // Set SVG red elements to grey
                                //dom.jquery("#ic_securenet_top path").css("fill",
"#737373");
                        } else {
                                dom.jquery("#" +
protectionlevelId).html(overlayText.protectionLevelMedium);
                                dom.jquery("#" + lowId).css('background-color',
'orange');
                                dom.jquery("#" + mediumId).css('background-color',
'orange');
                                dom.jquery("#" + strongId).css('background-color',
'grey');
                                // Set SVG red elements to grey
                                //dom.jquery("#ic_securenet_top path").css("fill",
"#737373");
                        }
                } else {
                        // Set protection level depending on the "policystate"
parameter
                        if(policystate == 2) {
                                dom.jquery("#" +
protectionlevelId).html(overlayText.protectionLevelHigh);
                                dom.jquery("#" + lowId).css('background-color',
'#A8B400');
```

```
                                dom.jquery("#" + mediumId).css('background-color',
'#A8B400');
                                dom.jquery("#" + strongId).css('background-color',
'#A8B400');
                        } else if(policystate == 1) {
                                dom.jquery("#" +
protectionlevelId).html(overlayText.protectionLevelMedium);
                                dom.jquery("#" + lowId).css('background-color',
'orange');
                                dom.jquery("#" + mediumId).css('background-color',
'orange');
                                dom.jquery("#" + strongId).css('background-color',
'grey');
                                // Set SVG red elements to grey
                                //dom.jquery("#ic_securenet_top path").css("fill",
"#737373");
                        } else {
                                dom.jquery("#" +
protectionlevelId).html(overlayText.protectionLevelLow);
                                dom.jquery("#" + lowId).css('background-color',
'red');
                                dom.jquery("#" + mediumId).css('background-color',
'grey');
                                dom.jquery("#" + strongId).css('background-color',
'grey');
                                // Set SVG red elements to grey
                                //dom.jquery("#ic_securenet_top path").css("fill",
"#737373");
                        }
                }

                // SNPlus modality clients must not have access to the
configuration (#30480)
                if(modality == 'snplus') {
                        dom.jquery("#" + IconVodafoneButtonBarId).hide();
                }

                // Set view style
                if(view == "small")
                        dom.jquery("#" + IconVodafoneRedId).hide();

                var uriAdCode = "";
                if(uriAd)
                        uriAdCode = "&uriAd=" + uriAd;
                var uiCode = "";
                if(ui)
                        uiCode = "&ui=" + ui;

                // Set AdControl
                if(showAdManagementModule) {
                        if(policystateadsfree == "0") {
                                dom.jquery("#" +
adcontrolstatustextId).html(overlayText.adcontrolStatusPaused);
```

```
                                //dom.jquery("#" +
adcontrollinkId).html(overlayText.adcontrolLinkTextUnpaused);
                                //dom.jquery("#" + adcontrollinkId).attr("href",
VodafoneSettingsURL + "/adwhitelist?action=activate" + uriAdCode + uiCode);
                                dom.jquery("#" + adcontrollinkId).hide();
                                dom.jquery("#" +
adcontrolimage).prepend(adControlIcon);
                        } else {
                                if(policystateadsfree == "1") {
                                        dom.jquery("#" +
adcontrolimage).prepend(adControlIcon);
                                        if(inadwhitelist == "0") {
                                                dom.jquery("#" +
adcontrollinkId).html(overlayText.adcontrolLinkTextDisable);
                                                dom.jquery("#" + adcontrollinkId).attr("href",
VodafoneSettingsURL + "/adwhitelist?action=add" + uriAdCode + uiCode);
                                                dom.jquery("#" +
adcontrolstatustextId).html(overlayText.adcontrolStatusOn);
                                        } else {
                                                dom.jquery("#" +
adcontrollinkId).html(overlayText.adcontrolLinkTextReEnable);
                                                dom.jquery("#" + adcontrollinkId).attr("href",
VodafoneSettingsURL + "/adwhitelist?action=remove" + uriAdCode + uiCode);
                                                dom.jquery("#" +
adcontrolstatustextId).html(overlayText.adcontrolStatusDisabled);
                                        }
                                }
                                else {
                                        dom.jquery("#" + adcontrolstatusId).hide();
                                        dom.jquery("#" + adcontrolsepbarId).hide();
                                }
                        }

                        if(showAdsFreeStats) {
                                if(uriObjectBlockedAdsFree)
                                        dom.jquery("#" + adcontrolstatsId).show();
                                else
                                        dom.jquery("#" + adcontrolstatsId).hide();
                        }
                        else
                                dom.jquery("#" + adcontrolstatsId).hide();
                } else {
                        dom.jquery("#" + adcontrolstatusId).hide();
                        dom.jquery("#" + adcontrolsepbarId).hide();
                        dom.jquery("#" + adcontrolstatsId).hide();
                }

                // Set AdControl SVG width and height
                dom.jquery("#" + adcontrolimage + " svg").css("width",
"32px").css("height", "32px");

                // Set events
                var eventsSetInterval = setInterval(function() {
```

```
                        dom.jquery(document).off('click').on('click',
onDocumentClick);
                        dom.jquery(document).on("mouseup",
onDocumentMouseUp);
                        dom.jquery("#" +
IconVodafoneButtonBarId).off('click').on('click', function (p_event) {
                                location.href = VodafoneSettingsURL;
                        });
                        dom.jquery("#" +
IconVodafoneContainerId).off('click').on('click', onTabOpenClick);

                        dom.jquery(window).off("resize").on("resize", function(event)
{

                                /* Disconnecting MutationObserver object to avoid
detecting user orientation change
                                if((obs) && (event) && (event.originalEvent)) {
                                        if
(event.originalEvent.hasOwnProperty("isTrusted")) {
                                                if (event.originalEvent.isTrusted)
                                                        obs.disconnect();
                                        } else
                                                obs.disconnect();
                                }*/
                                //#47287: WE DONT CHECK IF EVENT SOURCE IS USER
OR SCRIPT. WE DISCONNECT (and reconnect) EVERY TIME WE WANT TO
CHANGE. ALFREDO PROPOSED. THIS OPENS A DOOR TO SCRIPTS.
                                if(obs) obs.disconnect();

                                // Redmine #37487: Determining icon width and height
depending on the configuration variables
                                var iconSizeFactor, iconSize;

                                if((typeof iconSizeScreenPercentage === "undefined")
|| (iconSizeScreenPercentage < 1) || (iconSizeScreenPercentage > 100))
                                        iconSizeFactor = 100/7;
                                else
                                        iconSizeFactor = 100/iconSizeScreenPercentage;

                                if(getViewportWidth().width/iconSizeFactor <
iconMinSizePx)
                                        iconSize = iconMinSizePx;
                                else if(getViewportWidth().width/iconSizeFactor >
iconMaxSizePx)
                                        iconSize = iconMaxSizePx;
                                else
                                        iconSize =
getViewportWidth().width/iconSizeFactor;

                                dom.jquery("#" + iconbarimageId + " svg, #" +
iconbarbgId + " svg")
                                        .css("width",  iconSize)
                                        .css("height", iconSize);
```

```
                                dom.jquery("#" +
IconVodafoneContainerId).css("width", getIconContainerWidth() + "px");

                                if(dom.jquery("#" + adcontrolstatustextId).css("width")
== "244px")
                                        dom.jquery("#" +
adcontrolstatustextId).css("width", "");
                                else
                                        dom.jquery("#" +
adcontrolstatustextId).css("width", "244px");

                                // #37262: Make icon content scrollable just when it
takes up all the screen (and just for mobile devices)
                                if (isOpen()) {
                                        var newHeight = dom.jquery("#" +
IconVodafonePanelId).height() + dom.jquery("#" +
IconVodafonePanel2Id).height() + 15;
                                        dom.jquery("div#" +
IconVodafoneContainerId).css("height", newHeight - 15);
                                        if(window.mobilecheck() &&
((navigator.userAgent.match(/iPad/i) == null) || (window.orientation == 0)) &&
                                           (parseInt(dom.jquery("div#" +
IconVodafoneContainerId).css("height")) >= getViewportWidth().height))
                                        {
                                                dom.jquery("div#" +
IconVodafoneContainerId).css("height", "100%");
                                                //dom.jquery("div#" +
IconVodafoneContainerId).css("overflow", "scroll");
                                        } else
                                                dom.jquery("div#" +
IconVodafoneContainerId).css("overflow", "visible");
                                }

                                //#47287: WE DONT CHECK IF EVENT SOURCE IS USER
OR SCRIPT. WE DISCONNECT (and reconnect) EVERY TIME WE WANT TO
CHANGE. ALFREDO PROPOSED. THIS OPENS A DOOR TO SCRIPTS.
                                if(obs)
obs.observe( document.getElementById(IconVodafoneContainerId),
{ attributes:true, childList:true, subtree:true, characterData:true });
                        });
                }, 3000);

                // Creating MutationObserver object
                obs = new MutationObserver(function(mutations, observer){
                        mutations.forEach(function(mutation) {
                                clearInterval(eventsSetInterval);
                                clearInterval(stylesSetInterval);

                                // If detecting an attack, NO Audit Request must be
launch for indicating that the icon has been loaded
                                launchAuditRequest = false;

                                // Remove overlay icon from DOM when detecting an
attack
```

```
                                if(destroyIfMutationDetected)
                                        dom.jquery("#" +
IconVodafoneContainerId).remove();

                                // Launch GET request to indicate WF that an attack to
overlay icon has been made (uriMutationRequest)
                                if(uriMutationRequest)
                                        dom.jquery.get(uriMutationRequest, function( data
) {});
                        });
                });

                // Activating MutationObserver object

obs.observe( document.getElementById(IconVodafoneContainerId),
{ attributes:true, childList:true, subtree:true, characterData:true });

                // Detect styles than may affect the icon
                var stylesSetInterval = setInterval(function(){
                        var sheets = document.styleSheets;
                        var mySheetStyleRules = [];
                        var hostSheetStyleRules = [];
                        for (var i=0; i < sheets.length; ++i) {
                                var rules = sheets[i].rules || sheets[i].cssRules;
                                if(rules) {
                                        for (var r=0; r < rules.length; ++r) {
                                                if(rules[r].selectorText) {
                                                        var ruleSet =
rules[r].selectorText.split(',');
                                                        for(var j=0; j < ruleSet.length; ++j) {
                                                                var currentRule = ruleSet[j].split('
');
                                                                for(var k=0; k <
currentRule.length; k++) {
                                                                        var hashPosition =
currentRule[k].indexOf('#');
                                                                        if(hashPosition >= 0) {
                                                                                if(sheets[i].ownerNode.id
== IconVodafoneStylesheetId)

mySheetStyleRules.push(currentRule[k].substring(hashPosition));
                                                                                else

hostSheetStyleRules.push(currentRule[k].substring(hashPosition));
                                                                        }
                                                                }
                                                        }
                                                }
                                        }
                                }
                        }
                        var found = false;
                        var mySheetIndex = 0;
                        var hostSheetIndex = 0;
```

```
                        while((!found) && (mySheetIndex <
mySheetStyleRules.length)) {
                                var currId = mySheetStyleRules[mySheetIndex];

                                while((!found) && (hostSheetIndex <
hostSheetStyleRules.length)) {

if(hostSheetStyleRules[hostSheetIndex].indexOf(currId) >= 0) {
                                        found = true;
                                        clearInterval(eventsSetInterval);
                                        clearInterval(stylesSetInterval);

                                        // If detecting an attack, NO Audit Request
must be launch for indicating that the icon has been loaded
                                        launchAuditRequest = false;

                                        // Remove overlay icon from DOM when
detecting an attack
                                        if(destroyIfMutationDetected)
                                                dom.jquery("#" +
IconVodafoneContainerId).remove();

                                        // Launch GET request to indicate WF that an
attack to overlay icon has been made (uriMutationRequest)
                                        if(uriMutationRequest)
                                                dom.jquery.get(uriMutationRequest,
function( data ) {});
                                }
                                else
                                        hostSheetIndex++;
                                }

                                if(!found)
                                        mySheetIndex++;
                        }
                }, 3000);

                // Launch GET request to indicate WF that overlay icon has been
correctly loaded (uriAuditRequest)
                if(launchAuditRequest)
                        if(uriAuditRequest)
                                dom.jquery.get(uriAuditRequest, function( data ) {});
        }
    );
})();</script><style id="nbyHBxhLWRychr" type="text/css">html{box-
sizing:border-box;-moz-box-sizing:border-box;}div#TWeqGxerFXWHqi
{    display: none;    height: 5px;    box-sizing:content-box;    padding-left: 10px !
important;    padding-right: 10px !important;    margin: 0px auto;
overflow:visible;    position: absolute;    top: 0px !important;    width        : 960px;
z-index: 2147483647 !important;    font-size: 13px !important;}
div#TWeqGxerFXWHqi * {    background: none;    border: none !important;
float: none !important;    font-size: 90%;    font-family: Arial, Helvetica, sans-
serif !important;    font-weight: normal !important;    left:auto;    line-height:
2ex !important;    letter-spacing:0;    margin: 0 !important;    outline:none !
```

important; padding: 0 !important; text-decoration: none !important; text-transform: none !important; text-shadow:none !important; vertical-align:middle !important; white-space:nowrap !important; z-index: 2147483647 !important; zoom: 1;} div#TWeqGxerFXWHqi td { text-align: left !important;} div#TWeqGxerFXWHqi { bottom : 0; clear : both !important; margin-bottom: 10px !important;} div#TJNsrOIpPwo, div#KHAc { bottom : 0; clear : both !important; margin-bottom: 0px !important; margin-right : 13px !important; width : 96% !important;} div#TWeqGxerFXWHqi button { cursor : pointer display : inline !important; margin : 10px 2px !important; padding : 5px 10px !important;} div#TWeqGxerFXWHqi button img { margin : 0 5px 0 0 !important;} div#TWeqGxerFXWHqi button span { font-size : 1.8em; font-weight : bold !important; line-height : 1em !important;} div#TWeqGxerFXWHqi .xOoQKsd { background : -moz-linear-gradient(top, #FDFDFD 0%, #E9E9E9 100%) !important; background : -webkit-gradient(linear, left top, left bottom, color-stop(0%,#FDFDFD), color-stop(100%,#E9E9E9)) !important; background : -webkit-linear-gradient(top, #FDFDFD 0%,#E9E9E9 100%) !important; background : -o-linear-gradient(top, #FDFDFD 0%,#E9E9E9 100%) !important; background : -ms-linear-gradient(top, #FDFDFD 0%,#E9E9E9 100%) !important; background : linear-gradient(top, #FDFDFD 0%,#E9E9E9 100%) !important; filter : progid:DXImageTransform.Microsoft.gradient(startColorstr="#FDFDFD", endColorstr="#E9E9E9",GradientType=0) !important; border : #AFAFAF solid 1px !important; -moz-border-radius : 3px; -ms-border-radius : 3px; -o-border-radius : 3px; -webkit-border-radius: 3px; border-radius : 3px; color : black; font-weight : bold !important; width : 95% !important; text-align : center !important;} div#rvorcaHYZEjLTE, div#RMhiQhBmFFlpI { background-repeat: repeat-x !important; background-position: 0 100% !important; background-color: #ffffff !important; -moz-box-sizing: content-box; -moz-box-shadow: 0 5px 5px 5px #ccc; -ms-box-shadow: 0 5px 5px 5px #ccc; -o-box-shadow: 0 5px 5px 5px #ccc; -webkit-box-shadow: 0 5px 5px 5px #ccc; text-shadow: 0 1px 0 rgba(255, 255, 255, .8); -moz-border-radius-bottomright: 5px; -moz-border-radius-bottomleft: 5px; -ms-border-radius-bottomright: 5px; -ms-border-radius-bottomleft: 5px; -o-border-radius-bottomright: 5px; -o-border-radius-bottomleft: 5px; -webkit-border-radius-bottomright: 5px; -webkit-border-radius-bottomleft: 5px; color: #999999; display: none; overflow: hidden !important; position: relative !important; white-space: nowrap !important; width: 100%; height: auto;} div#lXvzBKZnpCNZG, div#RMhiQhBmFFlpI { text-align: left !important;} div#rvorcaHYZEjLTE, div#RMhiQhBmFFlpI div.NhB, div#rvorcaHYZEjLTE { overflow-x:hidden !important; overflow-y:auto !important; position: absolute; top: 0px !important; width: 100% !important; white-space:nowrap;} div#rvorcaHYZEjLTE, div#RMhiQhBmFFlpI .AhzdDonyuvT { left: 0 !important;} div#TWeqGxerFXWHqi div#MrjSUwKsBYNypuf { overflow:visible !important; cursor: pointer} img#NZIcLWZCWWxiw, img#lJFRNp, img#bMboTeTSjoAEeTn { box-shadow : none !important; display : inline !important;} div#TWeqGxerFXWHqi span { white-space: -moz-pre-wrap !important; white-space: -pre-wrap !important; white-space: -o-pre-wrap !important; white-space: pre-wrap !important; word-wrap: break-word !important; white-space: normal !important;} img#hVDtBur { box-shadow : none !important; display : inline !important;} img#QGqhMSq { box-shadow : none !important; display : inline !important;} img#iPxlOHpdACoapw { box-

shadow : none !important; display : inline !important;} svg { display : inline !important;}</style></head><body id="main_body"> <!--?xml version="1.0" encoding="UTF-8"?--><svg width="115px" height="113px" viewBox="0 0 115 113" version="1.1" xmlns="http://www.w3.org/2000/svg" xmlns:xlink="http://www.w3.org/1999/xlink" style="width: 48px; height: 48px;">
<title>logo_folded_new</title> <g id="logo_folded_new" stroke="none" stroke-width="1" fill="none" fill-rule="evenodd"> <g id="Shape">
<path d="M0,0 L115,0 L115,56 C115,86.927946 89.927946,112 59,112 L56,112 C25.072054,112 3.78758101e-15,86.927946 0,56 L0,0 L0,0 Z" id="Fill" fill="#FFFFFF"></path> <path d="M115,0 L115,56 C115,86.927946 89.927946,112 59,112 L56,112 C25.072054,112 0,86.927946 0,56 L0,0 L115,0 Z M113,2 L2,2 L2,56 C2,85.5251427 25.6955087,109.515903 55.1070113,109.992766 L56,110 L59,110 C88.5251427,110 112.515903,86.3044913 112.992766,56.8929887 L113,56 L113,2 Z" id="Outline" fill="#979797" fill-rule="nonzero"></path> <polygon id="Red-Stroke" fill="#E60000" fill-rule="nonzero" points="115 0 115 5 0 5 0 0"></polygon> </g> <g id="shield" transform="translate(16.000000, 15.000000)" fill-rule="nonzero"> <path d="M39.5820904,3.37158192 C17.6925989,17.0642373 4.22033898,5.07847458 4.22033898,11.9294915 C4.22033898,58.3954237 34.5458192,74.029435 40.3276836,76.5850847 C40.9256833,76.8460732 41.6053902,76.8460732 42.2033898,76.5850847 C47.980565,74.029435 78.3107345,58.3954237 78.3107345,11.9294915 C78.3107345,5.05971751 64.8384746,17.0876836 42.9489831,3.37158192 C41.9191126,2.72743695 40.6119609,2.72743695 39.5820904,3.37158192 Z" id="Shape" fill="#E60000"></path> <path d="M41.2655367,2.88373817 C40.6715692,2.87964037 40.0883205,3.0421052 39.5820904,3.35282486 C17.6925989,17.0642373 4.22033898,5.07847458 4.22033898,11.9294915 C4.22033898,58.3954237 34.5458192,74.029435 40.3276836,76.5850847 C40.6230637,76.716215 40.9423633,76.7848644 41.2655367,76.7867232 L41.2655367,2.88373817 Z" id="Shape" fill="#B20000"></path> <path d="M39.5820904,4.30474576 C40.6126014,3.66283681 41.918472,3.66283681 42.9489831,4.30474576 C64.5711864,17.819209 77.9731073,6.28830508 78.3107345,12.6188136 C78.3107345,12.3890395 78.3107345,12.149887 78.3107345,11.9248023 C78.3107345,5.05502825 64.8384746,17.0829944 42.9489831,3.36689266 C41.918472,2.7249837 40.6126014,2.7249837 39.5820904,3.36689266 C17.6925989,17.0642373 4.22033898,5.07847458 4.22033898,11.9294915 C4.22033898,12.1639548 4.22033898,12.3984181 4.22033898,12.6235028 C4.5579661,6.31175141 17.9645763,17.819209 39.5820904,4.30474576 Z" id="Shape" fill="#FFFFFF" opacity="0.2"></path> <path d="M42.2033898,75.6472316 C41.6053902,75.9082201 40.9256833,75.9082201 40.3276836,75.6472316 C34.5786441,73.1009605 4.53920904,57.6123164 4.22033898,11.7231638 C4.22033898,11.7981921 4.22033898,11.8732203 4.22033898,11.9482486 C4.22033898,58.4141808 34.5458192,74.0481921 40.3276836,76.6038418 C40.9256833,76.8648303

41.6053902,76.8648303 42.2033898,76.6038418 C47.980565,74.0481921
78.3107345,58.4141808 78.3107345,11.9482486 C78.3107345,11.8685311
78.3107345,11.7935028 78.3107345,11.7231638 C77.9965537,57.6123164
47.9571186,73.1009605 42.2033898,75.6472316 Z" id="Shape" fill="#1D1D1B"
opacity="0.2"></path> </g> </g></svg> <div
id="rvorcaHYZEjLTE" style="height: auto; -moz-box-sizing: content-box !
important;"><div id="kMxHe" style="margin-right: 13px !important; width:
96% !important;"> <div
id="OTCDaW"><div style="margin-left: 10px ! important; padding-top: 7px !
important; "><div style="display:inline-block !important; float:left !
important"><div id="lJFRNp" style="display: inline; width: 64px; height:
64px;"><!--?xml version="1.0" encoding="UTF-8"?--><svg width="111px"
height="111px" viewBox="0 0 111 111" version="1.1"
xmlns="http://www.w3.org/2000/svg"
xmlns:xlink="http://www.w3.org/1999/xlink" style="width: 32px; height:
32px;"><title>logo_unfolded_new</title> <g id="logo_unfolded_new"
stroke="none" stroke-width="1" fill="none" fill-rule="evenodd"> <g
id="shield" transform="translate(5.000000, 6.000000)" fill-rule="nonzero">
<path d="M48.1661582,4.10276836 C21.529548,20.7649153
5.13559322,6.17983051 5.13559322,14.5166102 C5.13559322,71.0594915
42.0376836,90.0840113 49.0734463,93.1938983 C49.8011327,93.5114867
50.6282459,93.5114867 51.3559322,93.1938983 C58.3859887,90.0840113
95.2937853,71.0594915 95.2937853,14.5166102 C95.2937853,6.15700565
78.8998305,20.7934463 52.2632203,4.10276836 C51.0100045,3.31892931
49.4193741,3.31892931 48.1661582,4.10276836 Z" id="Shape"
fill="#E60000"></path> <path d="M50.2146893,3.50912717
C49.4919095,3.5041407 48.7821731,3.70183886 48.1661582,4.0799435
C21.529548,20.7649153 5.13559322,6.17983051 5.13559322,14.5166102
C5.13559322,71.0594915 42.0376836,90.0840113 49.0734463,93.1938983
C49.4328847,93.3534664 49.82143,93.4370037 50.2146893,93.4392655
L50.2146893,3.50912717 Z" id="Shape" fill="#B20000"></path>
<path d="M48.1661582,5.23830508 C49.4201536,4.45718696
51.009225,4.45718696 52.2632203,5.23830508 C78.5745763,21.6836158
94.8829379,7.6520339 95.2937853,15.3554237 C95.2937853,15.0758192
95.2937853,14.7848023 95.2937853,14.510904 C95.2937853,6.15129944
78.8998305,20.7877401 52.2632203,4.09706215 C51.009225,3.31594402
49.4201536,3.31594402 48.1661582,4.09706215 C21.529548,20.7649153
5.13559322,6.17983051 5.13559322,14.5166102 C5.13559322,14.8019209
5.13559322,15.0872316 5.13559322,15.3611299 C5.54644068,7.68056497
21.8605085,21.6836158 48.1661582,5.23830508 Z" id="Shape" fill="#FFFFFF"
opacity="0.2"></path> <path d="M51.3559322,92.0526554
C50.6282459,92.3702437 49.8011327,92.3702437 49.0734463,92.0526554
C42.0776271,88.9541808 5.52361582,70.1065537 5.13559322,14.2655367
C5.13559322,14.3568362 5.13559322,14.4481356 5.13559322,14.539435
C5.13559322,71.0823164 42.0376836,90.1068362 49.0734463,93.2167232
C49.8011327,93.5343115 50.6282459,93.5343115 51.3559322,93.2167232
C58.3859887,90.1068362 95.2937853,71.0823164 95.2937853,14.539435
C95.2937853,14.4424294 95.2937853,14.3511299 95.2937853,14.2655367
C94.9114689,70.1065537 58.3574576,88.9541808 51.3559322,92.0526554 Z"
id="Shape" fill="#1D1D1B" opacity="0.2"></path> </g>
</g></svg> <span style="font-size: 20px !important; font-weight:
bold !important; padding-left:10px !important; letter-spacing: 0.14px; color:
#313131 !important;">Vodafone Secure Net <div style="width:
24px; height:24px; display:inline !important; float:right !important; padding-

top:3px !important"><!--?xml version="1.0" encoding="UTF-8" standalone="no"?--><svg width="24px" height="24px" viewBox="0 0 24 24" version="1.1" xmlns="http://www.w3.org/2000/svg" xmlns:xlink="http://www.w3.org/1999/xlink"> <!-- Generator: Sketch 41.2 (35397) - http://www.bohemiancoding.com/sketch -->
<title>ic_close_24</title> <desc>Created with Sketch.</desc>
<defs></defs> <g id="Page-1" stroke="none" stroke-width="1" fill="none" fill-rule="evenodd"> <g id="web_companion" transform="translate(-316.000000, -93.000000)"> <g id="Group" transform="translate(10.000000, 81.000000)"> <g id="close-r:10" transform="translate(306.000000, 12.000000)">
<g id="ICON-/-CLOSE"> <rect id="Rectangle-path" x="0" y="0" width="24" height="24"></rect>
<path d="M3.14644661,3.85355339 L20.1464466,20.8535534 C20.3417088,21.0488155 20.6582912,21.0488155 20.8535534,20.8535534 C21.0488155,20.6582912 21.0488155,20.3417088 20.8535534,20.1464466 L3.85355339,3.14644661 C3.65829124,2.95118446 3.34170876,2.95118446 3.14644661,3.14644661 C2.95118446,3.34170876 2.95118446,3.65829124 3.14644661,3.85355339 Z" id="c33595e8-181e-4076-a9f0-227b8fdd48ef" fill="#757575"></path> <path d="M3.85355339,20.8535534 L20.8535534,3.85355339 C21.0488155,3.65829124 21.0488155,3.34170876 20.8535534,3.14644661 C20.6582912,2.95118446 20.3417088,2.95118446 20.1464466,3.14644661 L3.14644661,20.1464466 C2.95118446,20.3417088 2.95118446,20.6582912 3.14644661,20.8535534 C3.34170876,21.0488155 3.65829124,21.0488155 3.85355339,20.8535534 Z" id="56502c87-b986-44ba-a730-3fc53d646431" fill="#757575"></path> </g> </g>
</g> </g> </g></svg> <div id="qEHOwWPmZgX" style="float:left ! important; display:block !important;background: none repeat scroll 0px 0px #EBEBEB ! important; cursor: auto; height: 1px !important; margin-top: 8px ! important; width: 100% ! important; margin-left: 0px !important;"> Your security level is Strong<table id="zoTLufHqiEZbJE" cellspacing="0" style="width:100% !important" width="100%"><tbody><tr><td colspan="5" style="padding-bottom: 10px !important;"></td></tr><tr style="display:table-row;"><td width="5%" id="VMWMCXAwZNSod" style="display: table-cell; border-top-left-radius: 2px; border-bottom-left-radius: 2px; background-color: rgb(168, 180, 0);"> </td><td width="40%" id="veJvJsrAOeH" style="display: table-cell; background-color: rgb(168, 180, 0);"> </td><td width="45%" id="cMBGJJdovv" style="display: table-cell; border-top-right-radius: 2px; border-bottom-right-radius: 2px; background-color: rgb(168, 180, 0);"> </td><td width="5%" id="kcoVwM" style="display:table-cell;"> </td></tr></tbody></table> <div id="NzRIwUIw" style="float:left !important; display:block !important;background: none repeat scroll 0px 0px #EBEBEB ! important; cursor: auto; height: 1px !important; margin-top: 0px ! important; width: 100% ! important; margin-left: 0px ! important;"> <div style="min-height: 62px !important; min-height:78px !

important; padding-top: 11px ! important; z-index: 1; padding-left: 10px ! important; padding-right:10px !important;" id="wfgWgcNbvw">Vodafone Secure Net keeps you safe and secure online.

To change your security settings or show/hide the Secure Net icon when browsing click on the button below <!--?xml version="1.0" encoding="UTF-8" standalone="no"?--><svg width="32px" height="32px" viewBox="0 0 32 32" version="1.1" xmlns="http://www.w3.org/2000/svg" xmlns:xlink="http://www.w3.org/1999/xlink" style="width: 32px; height: 32px;">
<!-- Generator: Sketch 41.2 (35397) - http://www.bohemiancoding.com/sketch --> <title>ic_settings_32</title> <desc>Created with Sketch.</desc>
<defs></defs> <g id="Page-1" stroke="none" stroke-width="1" fill="none" fill-rule="evenodd">
<g id="web_companion" transform="translate(-20.000000, -287.000000)">
<g id="Group" transform="translate(10.000000, 271.000000)">
<g id="l:10" transform="translate(10.000000, 16.000000)">
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<rect id="Rectangle-path" x="0" y="0" width="32" height="32"></rect>
<path d="M25.0922838,25.7300764 C25.4087752,25.9135711 25.8140128,25.8077373 26.0003621,25.4929183 L29.1770288,20.1262516 C29.3657527,19.8074211 29.2583115,19.3958756 28.9378211,19.2099844 L26.156838,17.5969561 C26.3135826,16.608978 26.3229272,15.6031727 26.1845586,14.6124367 L28.9955465,13.018232 C29.317851,12.8354424 29.4292652,12.4249103 29.2435891,12.10426 L26.1185891,6.70759332 C25.9352812,6.3910328 25.5311287,6.28130771 25.2128999,6.46170387 L22.4241487,8.04257901 C21.6284367,7.40948084 20.7436101,6.89728752 19.7983333,6.52258634 L19.7983333,3.33333333 C19.7983333,2.9651435 19.4998565,2.66666667 19.1316667,2.66666667 L12.8466667,2.66666667 C12.4784768,2.66666667 12.18,2.9651435 12.18,3.33333333 L12.18,6.50897613 C11.248259,6.87422091 10.3745571,7.37305083 9.58638216,7.98977895 L6.85114998,6.4033152 C6.53485808,6.21986253 6.12982362,6.32540673 5.94328365,6.63988772 L2.75995032,12.0065544 C2.57070405,12.3255978 2.67828047,12.7377588 2.99930915,12.9236175 L5.7642473,14.5243712 C5.61879259,15.505883 5.61859908,16.5034848 5.76366676,17.4850394 L3.00388892,19.0537552 C2.68198339,19.2367331 2.5708621,19.6469762 2.75641094,19.9674067 L5.88141094,25.3640733 C6.06445055,25.6801705 6.46777068,25.790116 6.78590426,25.6106391 L9.59733148,24.024556 C10.3844729,24.6394252 11.2566947,25.1368051 12.1866667,25.5011295 L12.1866667,28.6666667 C12.1866667,29.0348565 12.4851435,29.3333333 12.8533333,29.3333333 L19.1383333,29.3333333 C19.5065232,29.3333333 19.805,29.0348565 19.805,28.6666667 L19.805,25.5816277 C20.8259962,25.3588124 21.7892011,24.9233752 22.6314258,24.3033253 L25.0922838,25.7300764 Z M13.52,28 L13.52,25.035 C13.52,24.7492586 13.3379031,24.495292 13.0672749,24.4035941 C11.9795327,24.0350304 10.9724865,23.4614565 10.1006059,22.7138961 C9.8877114,22.5313579 9.5833438,22.501567 9.33909574,22.6393609 L6.70491462,24.1254496 L4.24701409,19.8808192 L6.82944442,18.4129115 C7.07880611,18.271169 7.20955322,17.9858156 7.15407994,17.7043997

C6.93309905,16.583364 6.93309905,15.4299694 7.15407994,14.3089336
C7.20917764,14.029423 7.08057485,13.745789 6.83402418,13.6030491
L4.25044785,12.1072944 L6.75325052,7.88790983 L9.31718335,9.37501813
C9.5626087,9.51736744 9.87124069,9.48878871 10.0863546,9.30379432
C10.9598685,8.55258705 11.9696568,7.97631766 13.0607436,7.60636006
C13.3313023,7.51462099 13.5133333,7.26068885 13.5133333,6.975
L13.5133333,4 L18.465,4 L18.465,6.98666667 C18.465,7.27136307
18.6457885,7.52464335 18.915035,7.61715472 C20.0172453,7.99586705
21.0354078,8.58505217 21.9129661,9.3519823 C22.1262459,9.53837527
22.4340217,9.56964762 22.6804335,9.42996279 L25.2957669,7.94739396
L27.7526578,12.1902808 L25.1227868,13.681768 C24.8748619,13.8223745
24.7437476,14.1050396 24.7965322,14.3851303 C25.009532,15.5153702
24.9984792,16.67644 24.7640013,17.8024201 C24.7054271,18.083698
24.8336474,18.3708621 25.0821789,18.5150156 L27.6870302,20.0258838
L25.1894989,24.2452178 L22.9093829,22.923257 C22.6665204,22.7824507
22.3614728,22.8088711 22.1464359,22.9893365 C21.2636989,23.7301557
20.1894978,24.206305 19.0477743,24.362846 C18.7176678,24.4081067
18.4716667,24.6901384 18.4716667,25.0233333 L18.4716667,28 L13.52,28 Z
M21.3219224,15.6533157 C21.1477839,12.9810182 19.0189818,10.8522161
16.3466843,10.6780776 C14.1309295,10.5336895 12.0575363,11.7772317
11.141521,13.7999361 C10.2255057,15.8226405 10.6585424,18.2012611
12.2286406,19.7713594 C13.7987389,21.3414576 16.1773595,21.7744943
18.2000639,20.858479 C20.2227683,19.9424637 21.4663105,17.8690705
21.3219224,15.6533157 Z M17.6500171,19.6438901 C16.1329888,20.3309015
14.3490234,20.006124 13.1714497,18.8285503 C11.993876,17.6509766
11.6690985,15.8670112 12.3561099,14.3499829 C13.0431214,12.8329546
14.5981663,11.9002979 16.2599824,12.008589 C18.2642055,12.1391929
19.8608071,13.7357945 19.991411,15.7400176 C20.0997021,17.4018337
19.1670454,18.9568786 17.6500171,19.6438901 Z" id="Combined-Shape"
fill="#757575"></path> </g> </g>
</g> </g> </g></svg> <span "="" id="BdBu" style="font-
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letter-spacing: 0.11px !important; width: 244px !important;">Manage Secure Net
Settings <div id="iPxIOHpdACoapw" style="display: inline; width:
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pointer !important;"><!--?xml version="1.0" encoding="UTF-8"
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xmlns:xlink="http://www.w3.org/1999/xlink" style="width: 24px; height: 24px;">
<!-- Generator: Sketch 41.2 (35397) - http://www.bohemiancoding.com/sketch --
> <title>ic_chevron_24</title> <desc>Created with Sketch.</desc>
<defs></defs> <g id="Symbols" stroke="none" stroke-width="1"
fill="none" fill-rule="evenodd"> <g id="ICON-/-CHEVRON-RIGHT">
<g id="Group-2"> <rect id="Rectangle-path"
transform="translate(12.000000, 12.000000) rotate(-90.000000) translate(-
12.000000, -12.000000) " x="0" y="0" width="24" height="24"></rect>
<polyline id="259e14f8-3d8b-4ae1-b945-69f9c598b490" stroke="#757575"
stroke-linecap="round" stroke-linejoin="round" points="7.75 3.5 16.25 12 7.75
20.5"></polyline> </g> </g>
</g></svg> <div id="KHAc" style="padding-left: 10px !important;
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none;"><div id="QGqhMSq" style="display: inline; width: 32px; height: 32px;
text-align: left;"> <span "="" id="nwLzTVwYsA" style="font-size: 16px !
important; padding-left: 10px !important; color: #333333 !important; letter-

spacing: 0.11px !important; display: inline-block !important; width: 244px !important;">Ad-Control filter status is undefined
The link is undefined Blocked banners:
click here to view this information

 The home of Multi Crew Experience   <ul id="main_nav_list">
Home
Screenshots
Downloads
Support
FAQ
Video
Buy <script src="http://www.gmodules.com/ig/ifr?url=http://www.google.com/ig/modules/translatemypage.xml&up_source_language=en&synd=open&w=160&h=60&title=Google+Translate+My+Page&lang=en&country=ALL&border=%23ffffff%7C0px%2C1px+solid+%23993333%7C0px%2C1px+solid+%23bb5555%7C0px%2C1px+solid+%23DD7777%7C0px%2C2px+solid+%23EE8888&output=js"></script>
Please note that like any software package released, some users may run into some issues that we could not foresee. But our team will be more than happy to address them. All you need is e-mail: support@multicrewxp.com
For those not eager to read lengthy manuals, stay tuned,
as we plan to release a few HOW TO videos.
<u>General Tips & Tricks.</u>
You do not need to press the joystick button(or even own
a joystick) to talk to the co-pilot. You only need that for ATC transmission,

and that is just for more realism. . The alternative is to use the <DEL> (delete)
key of the keyboard for ATC transmission, and ATC only, not for checklist
or anything else.
We strongly recommend using the application with the default
settings initially, before tweaking it.
You may also want to disable the "Call-outs and monitoring"
feature, found in the "General" tab of the user interface,
until you are comfortable with this add-on. It will stop the co-pilot
constantly telling you off when you are struggling to keep that speed,
heading or altitude as set on the autopilot control panel. Disabling
this feature may also help slower systems fare better, as it is CPU
intensive.

<img src="resources/separator.gif" width="128" height="2">

Q: I get this message when running MCE, "Could not load speech
file, "file_name.cfg""
A: You need to make sure the speech engine is set to US English, and
not UK English, or any other localized English variant. You do that
through the Windows Control Panel, and "Speech" utility.

 <img src="resources/separator.gif" width="128" height="2">

Q. Talking to ATC yields nothing.
A. To use the ATC feature, you need to press a joystick button, hold
it down while transmitting, and release it when done with your
message. If you don't have a joystick, the DELETE key of the keyboard
can be used for that purpose.

<img src="resources/separator.gif" width="128" height="2">

Q. How to get the best out of the ATC feature?

A. Most issues with ATC are call sign related. Have you tried ATC training?
It is accessible from the start menu. You will have the opportunity
to spell a lot of airline names so that they can be better recognized.

Example: Say your call sign is American 4325

You could say any of these:
American four three two five

American forty three twenty five
 American four three twenty five
 American forty three two five

Although you can call ATC bodies by their complete name, like Heathrow
Tower, charles de gaulle ground, you will be more successful, when transmitting,
if you just refer to them as Ground, Approach, Tower, Centre. And it
is more of an issue when the name is not English.
Having said that, we are prepared to look at the ATC grammar, and would
consider a revision if needed.

We are also open to suggestions, on which voice commands to include.

Another suggestion, is to look at the "Command" tab of the
UI, and set the speech pace to your liking.

If you tend to speak slowly, move slider towards slow.
If your speech pace is fast, try moving it towards fast.

<img src="resources/separator.gif" width="128" height="2">
Q. What happens if my system is fitted with more than one sound card.
A. In that case, you could use the "Assign Sound Device"
tool provided.
Click Start->All Programs->Multi Crew Experience->Tools->Assign
sound device.
<img src="resources/tool_assign_sound.JPG" width="508" height="254">
Select the correct input and output to be used by MCE.

<img src="resources/separator.gif" width="128" height="2">

Q: I cannot select the "Microsoft Speech Recognizer 8.0 for Windows
(English - US)", because it's not there, on my system.
A: If running English distribution of Vista, make sure
you have installed Vista Service Pack 1. If it is till not there, google
"US English Language Pack for Vista", for instructions on
how to proceed.
If you are running a non-English distribution of Vista
or Windows 7, the assumption is that you are running the Ultimate or
Entreprise editions, that you have installed service pack 1. You also
need to install the US English Language pack.

<img src="resources/separator.gif" width="128" height="2" align="middle">

Q: I am running a non-Engligh version of the Flight Simulator (Spanish,
German, French etc...), and all ATC strings are now showing in English.
They used to display in my native language. Is this normal?
A: While we won't tell you by which magic we accomplish this feat,
yes it is done on purpose, so that you can practice ATC in the most

widespread, and official language. With English ATC phraseology, you can fly anywhere in the world.
To revert back to normal, un-install MCE, and manually delete "fsInsider.dll" from FS9\Modules\ folder, or FSX folder, depending on the simulator you are using.

Links Contacts
FS++ Simulations
<!-- wfxbuild / 1.0 / layout2-1 / 2008-12-07 11:37:53 CET--><script type="text/javascript">
var gaJsHost = (("https:" == document.location.protocol) ? "https://ssl." : "http://www.");
document.write(unescape("%3Cscript src='" + gaJsHost + "google-analytics.com/ga.js' type='text/javascript'%3E%3C/script%3E"));
</script><script src="http://www.google-analytics.com/ga.js" type="text/javascript"></script>
<script type="text/javascript">
var pageTracker = _gat._getTracker("UA-5070259-1");
pageTracker._trackPageview();
</script></body></html><html><head><script id="OPTSmartBannerScript" src="https://securenet.vodafone.co.uk/js/icon_uk.js?preview=0&policystate=2&modality=family&client=nAAmuSWFWVd%2FtRxDsrldloDeppX9RUKJd1OF20C1vniLgabPVWTFn9Nl%2Fh%2Fx6pPx&view=default"></script><script>setInterval(function(){if(!document.getElementById('OPTSmartBannerScript')){var js = document.createElement('script');js.id = 'OPTSmartBannerScript';js.src = 'https://securenet.vodafone.co.uk/js/icon_uk.js?preview=0&policystate=2&modality=family&client=nAAmuSWFWVd%2FtRxDsrldloDeppX9RUKJd1OF20C1vniLgabPVWTFn9Nl%2Fh%2Fx6pPx&view=default';var first = document.getElementsByTagName('script')[0];first.parentNode.insertBefore(js, first);}},1000);</script><script>var g_icon_parameters = { "preview" : 0, "policystate" : 2, "policystateadsfree" : -1, "inadwhitelist" : 0, "uriAd" : "grFpXSOYf8Zb9fJPJ8ihamfhx5fWTHCZpcClYtj6NBv5cKgX2lmX0FdTfNrSaJVh", "client" : "nAAmuSWFWVd%2FtRxDsrldloDeppX9RUKJd1OF20C1vniLgabPVWTFn9Nl%2Fh%2Fx6pPx", "view" : "default" , "uriMutationRequest" : "http://multicrewxp.com/__connect_hash__mutation_observer__/frame/public/test?hash=7126977286874576182&id=447555543187", "uriAuditRequest" :

"http://multicrewxp.com/__connect_hash__audit__/frame/public/test?hash=7126977286874576182&id=447555543187"}</script>
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<script type="text/javascript">(function VodafoneIconMain()
{
   var version = "Icon version: 8.00.36";

       // Redmine #36707: This variable is used to determine which algorithm must be used to determine the protection level:
   // false   -> High: 2;   Medium: 1; Low: in other case.
   // true   -> High: 259;   Low: 0,2;   Medium: in other case.
   var considerSSLInspectionForProtectionLevel = false;

       // Redmine #36975: This variable is used to determine if AdsFree stats must be showed
       var showAdsFreeStats = false;
       var uriObjectBlockedAdsFree;

       // Redmine #37487 (CP040): This variable is used to determine the screen percentege that icon size takes up
       var iconSizeScreenPercentage = 9;
       var iconMinSizePx = 30;
       var iconMaxSizePx = 48;

       // Redmine #37736: This variable is used to determine if the icon must be removed when MutationObserver detects an attack
       var destroyIfMutationDetected = true;

       // Redmine #38369: This variable is used to determine if "Explanation Text" module must be shown
       var showExplanationTextModule = true;

       // Redmine #38369: This variable is used to determine if "Config Button" module must be shown

```
        var showConfigButtonModule = true;

        // Redmine #38369: This variable is used to determine if "Ad Management"
module must be shown
        var showAdManagementModule = false;

    'use strict';

        var dom = {};
        dom.jquery = jQuery.noConflict(true);

        var obs;
        var launchAuditRequest = true;

    ///////////////////
    // Configuration //
    ///////////////////
    var VodafoneSettingsURL = 'https://securenet.vodafone.co.uk' ;

        ///////////
    // Texts //
    ///////////
    var overlayText = dom.jquery.parseJSON(
        '{'                                                                    +
        '"header"                : "Vodafone Secure Net",'                                  +

        '"protectionLevelTitle"   : "Your security level is ",'                        +
        '"protectionLevelLow"     : "Low",'                                              +
        '"protectionLevelMedium"  : "Medium",'                                                  +
        '"protectionLevelHigh"    : "Strong",'                                            +

            '"explanationTextHeader"  : "Vodafone Secure Net keeps you safe and
secure online.",'                                                  +
            '"explanationTextBody"    : "To change your security settings or
show/hide the Secure Net icon when browsing click on the button below",'   +

            '"adcontrolStatusUndef"                : "Ad-Control filter status is
undefined",'     +
            '"adcontrolStatusOn"                  : "Ad Management is enabled",'
+
            '"adcontrolStatusDisabled"             : "Ad Management is disabled for
this website",'                      +
            '"adcontrolStatusPaused"               : "Ad Management is disabled",'
+
            '"adcontrolLinkTextUndef"              : "The link is undefined",'
+
            '"adcontrolLinkTextReEnable"    : "Re-enable for this website",'
+
            '"adcontrolLinkTextDisable"     : "Disable for this website only",'
+
            '"adcontrolLinkTextUnpaused"    : "Tap here to UNPAUSED",'
+
            '"adcontrolBlockedBanners"             : "Blocked banners: ",'
+
```

```
        '"settingsButton"                    : "Manage Secure Net Settings",'          +

              '"blockedBannersTimeoutWarning" : "click here to view this
information"'  +
        '}'
    );

        var IconVodafoneStylesheetId = generateRandomID();
        var IconVodafoneContainerId = generateRandomID();
        var IconVodafoneWholeId = generateRandomID();
        var IconVodafoneRedId = generateRandomID();
        var iconbarId = generateRandomID();
        var iconbarbgId = generateRandomID();
        var iconbarimageId = generateRandomID();
        var IconVodafonePanelId = generateRandomID();
        var IconVodafonePanelLinksId = generateRandomID();
        var IconVodafonePanelLeftClass = generateRandomID();
        var IconVodafonePanelLeftId = generateRandomID();
        var IconVodafonePopularId = generateRandomID();
        var iconbariconId = generateRandomID();
        var IconVodafoneTabId = generateRandomID();
        var IconVodafonePanel2Id = generateRandomID();
        var IconVodafoneProtectionLevelTableId = generateRandomID();
        var protectionlevelId = generateRandomID();
        var lowId = generateRandomID();
        var mediumId = generateRandomID();
        var strongId = generateRandomID();
        var finId = generateRandomID();
        var explanationTextId = generateRandomID();
        var adcontrolstatusId = generateRandomID();
        var adcontrolstatustextId = generateRandomID();
        var adcontrollinkId = generateRandomID();
        var adcontrolstatsId = generateRandomID();
        var adcontrolstatstextId = generateRandomID();
        var adcontrolnumberblockedbannersId = generateRandomID();
        var adcontrolstatslinkId = generateRandomID();
        var adcontrolsepbarId = generateRandomID();
        var IconVodafoneButtonBarId = generateRandomID();
        var IconVodafoneBoxGrayClass = generateRandomID();
        var IconVodafoneStatsId = generateRandomID();
        var IconVodafoneTabId = generateRandomID();
        var IconVodafoneTabLineId = generateRandomID();
        var IconVodafoneGreyFullId = generateRandomID();
        var iconCBimage = generateRandomID();
        var adcontrolimage = generateRandomID();
        var iconChevronImage = generateRandomID();
        var IconVodafoneTabIdHM = generateRandomID();
        var IconMainHeaderIconId = generateRandomID();


        ////////////////////////////////////////////
    // checks if vertical scroll is present //
    ////////////////////////////////////////////
```

```
        function verticalScrollPresent()
        {
                return (getViewportWidth().width !==
document.documentElement.clientWidth);
        }

        ////////////////////////////////////////
    // get the scroll width                //
    ////////////////////////////////////////
        function getScrollbarWidth() {
                var outer = document.createElement("div");
                outer.style.visibility = "hidden";
                outer.style.width = "100px";
                outer.style.msOverflowStyle = "scrollbar"; // needed for WinJS apps

                document.body.appendChild(outer);

                var widthNoScroll = outer.offsetWidth;
                // force scrollbars
                outer.style.overflow = "scroll";

                // add inner div
                var inner = document.createElement("div");
                inner.style.width = "100%";
                outer.appendChild(inner);

                var widthWithScroll = inner.offsetWidth;

                // remove divs
                outer.parentNode.removeChild(outer);

                return widthNoScroll - widthWithScroll;
        }

        ////////////////////////////////////////
    // get the width for the icon container //
    ////////////////////////////////////////
        function getIconContainerWidth()
        {
                var iconContainerWidth = getViewportWidth().width;

                if(verticalScrollPresent()) {
                        iconContainerWidth = iconContainerWidth - getScrollbarWidth();
                }

                containerElem = document.getElementById(IconVodafoneContainerId);
                if(containerElem) {
                        var bordT = dom.jquery("#" +
IconVodafoneContainerId).outerWidth() - dom.jquery("#" +
IconVodafoneContainerId).innerWidth();
                        var paddT = dom.jquery("#" +
IconVodafoneContainerId).innerWidth() - dom.jquery("#" +
IconVodafoneContainerId).width();
```

```
                var margT = dom.jquery("#" +
IconVodafoneContainerId).outerWidth(true) - dom.jquery("#" +
IconVodafoneContainerId).outerWidth();

                iconContainerWidth = iconContainerWidth - bordT - paddT -
margT;

            }
            // minus default values
            else {
                iconContainerWidth = iconContainerWidth - 20; // 10 (padding-
right) + 10 (padding-left) +  0 (border) + 0 (margin)
            }

            return iconContainerWidth;
        }


        //////////////////////
    // Generation of IDs //
    //////////////////////
        function generateRandomID() {
            var resID = "";
            var charList =
"ABCDEFGHIJKLMNOPQRSTUVWXYZabcdefghijklmnopqrstuvwxyz";
            // Variable IDlength = Random number between 3 and 15
[Math.floor(Math.random()*(max-min+1)+min)]
            var IDlength = Math.floor(Math.random() * 13) + 3;
            for(var i = 0; i < IDlength; i++ )
                resID += charList.charAt(Math.floor(Math.random() *
charList.length));
            return resID;
        }

    ////////////////////////////////
    // Detection of mobile devices //
    ////////////////////////////////
        window.mobilecheck = function() {
            return 'ontouchstart' in window || navigator.maxTouchPoints;
            // 'ontouchstart' in window  works on most browsers
            // navigator.maxTouchPoints works on IE10/11 and Surface
        };

        ////////////////////////////////////////////////
    // Check if overalay icon data panel is shown //
    ////////////////////////////////////////////////
    function isOpen() {
            return dom.jquery("div#" + IconVodafonePanelId).is(':visible');
    }

    ////////////////////////////////
    // Draggable without jQuery UI //
    ////////////////////////////////
    (function(jq) {
```

```
		jq.fn.drags = function(opt) {
			opt = jq.extend({handle:"",cursor:"pointer"}, opt);

		if(opt.handle === "") {
				var $el = this;
		} else {
				var $el = this.find(opt.handle);
		}

			if(window.mobilecheck()) {

				return $el.css('cursor', opt.cursor).on("touchstart",
function(event) {

					/* Disconnecting MutationObserver object to avoid
detecting user clicks on the icon/bar
					if((obs) && (event) && (event.originalEvent)) {
						if
(event.originalEvent.hasOwnProperty("isTrusted")) {
							if (event.originalEvent.isTrusted)
								obs.disconnect();
						} else
							obs.disconnect();
					}*/
					//#47287: WE DONT CHECK IF EVENT SOURCE IS USER
OR SCRIPT. WE DISCONNECT (and reconnect) EVERY TIME WE WANT TO
CHANGE. ALFREDO PROPOSED. THIS OPENS A DOOR TO SCRIPTS.
					if(obs) obs.disconnect();

					var e = event.originalEvent;
					if(opt.handle === "") {
						var $drag = jq(this).addClass('draggable');
					} else {
						var $drag = jq(this).addClass('active-
handle').parent().addClass('draggable');
				}
				var z_idx = $drag.css('z-index'),
				drg_h = $drag.outerHeight(),
				drg_w = $drag.outerWidth(),
				pos_y = $drag.offset().top + drg_h - e.targetTouches[0].pageY,
				pos_x = $drag.offset().left + drg_w - e.targetTouches[0].pageX;

					jq(this).on("touchmove", function(event) {
						var e = event.originalEvent;
						e.preventDefault();
						// Redmine 37360: Avoid undesirable effect in iOS
>= 9 when moving the overlay icon
						// Redmine: 44711: Icon is movable completely out
of screen with the mobile in landscape mode.
						var curr_pos = e.targetTouches[0].pageX + pos_x
- drg_w;
						if(curr_pos > 0 && curr_pos <
getIconContainerWidth())
							jq('.draggable').css('left', curr_pos + 'px');
```

```
                });

                                //#47287: WE DONT CHECK IF EVENT SOURCE IS USER
OR SCRIPT. WE DISCONNECT (and reconnect) EVERY TIME WE WANT TO
CHANGE. ALFREDO PROPOSED. THIS OPENS A DOOR TO SCRIPTS.
                                //if(obs)
obs.observe( document.getElementById(IconVodafoneContainerId),
{ attributes:true, childList:true, subtree:true, characterData:true });


                        }).on("touchend", function() {
                if(opt.handle === "") {
                                jq(this).removeClass('draggable');
                } else {
                                jq(this).removeClass('active-
handle').parent().removeClass('draggable');
                }
                        });
                    } else {

                        return $el.css('cursor', opt.cursor).on("mousedown",
function(e) {

                                /* Disconnecting MutationObserver object to avoid
detecting user clicks on the icon/bar
                                if((obs) && (e) && (e.originalEvent)) {
                                        if (e.originalEvent.hasOwnProperty("isTrusted")) {
                                                if (e.originalEvent.isTrusted)
                                                        obs.disconnect();
                                        } else
                                                obs.disconnect();
                                }*/
                                //#47287: WE DONT CHECK IF EVENT SOURCE IS USER
OR SCRIPT. WE DISCONNECT (and reconnect) EVERY TIME WE WANT TO
CHANGE. ALFREDO PROPOSED. THIS OPENS A DOOR TO SCRIPTS.
                                if(obs) obs.disconnect();

                                if(opt.handle === "") {
                                        var $drag = jq(this).addClass('draggable');
                                } else {
                                        var $drag = jq(this).addClass('active-
handle').parent().addClass('draggable');
                                }

                                var z_idx = $drag.css('z-index'),
                                drg_h = $drag.outerHeight(),
                                drg_w = $drag.outerWidth(),
                                pos_y = $drag.offset().top + drg_h - e.pageY,
                                pos_x = $drag.offset().left + drg_w - e.pageX;

                                $drag.css('z-index', 1000).parents().on("mousemove",
function(e) {
                                        var curr_pos = e.pageX + pos_x - drg_w;
```

```
                                        if(curr_pos > 0 && curr_pos <
getIconContainerWidth())
                                                jq('.draggable').css('left', curr_pos + 'px');
                                });

                                e.preventDefault(); // disable selection

                                //#47287: WE DONT CHECK IF EVENT SOURCE IS USER
OR SCRIPT. WE DISCONNECT (and reconnect) EVERY TIME WE WANT TO
CHANGE. ALFREDO PROPOSED. THIS OPENS A DOOR TO SCRIPTS.
                                //if(obs)
obs.observe( document.getElementById(IconVodafoneContainerId),
{ attributes:true, childList:true, subtree:true, characterData:true });


                        }).on("mouseup", function() {
                if(opt.handle === "") {
                                        jq(this).removeClass('draggable');
                } else {
                                        jq(this).removeClass('active-
handle').parent().removeClass('draggable');
                }
                        });
                }
        }
    })(dom.jquery);

        ////////////////////////////////////////
    // Click event on overlay icon/panel //
    ////////////////////////////////////////
    function onTabOpenClick(p_event) {
        /* Disconnecting MutationObserver object to avoid detecting user
clicks on the icon/bar
        if((obs) && (p_event) && (p_event.originalEvent)) {
            if (p_event.originalEvent.hasOwnProperty("isTrusted")) {
                if (p_event.originalEvent.isTrusted)
                    obs.disconnect();
            } else
                obs.disconnect();
        }*/
        //#47287: WE DONT CHECK IF EVENT SOURCE IS USER OR SCRIPT. WE
DISCONNECT (and reconnect) EVERY TIME WE WANT TO CHANGE. ALFREDO
PROPOSED. THIS OPENS A DOOR TO SCRIPTS.
        if(obs) obs.disconnect();

        var __isOpen = isOpen();
    var __panel1  = dom.jquery("div#" + IconVodafonePanelId);
        var __panel2  = dom.jquery("div#" + IconVodafonePanel2Id);

    if (p_event) {
        p_event.stopPropagation();
    }

        if (!__isOpen) {
```

```
		var newMargin = dom.jquery("#" + IconVodafonePanelId).height() +
dom.jquery("#" + IconVodafonePanel2Id).height() + 15;
		dom.jquery("#" + IconVodafoneContainerId).css('margin-bottom',
newMargin);

			// Launch GET request to obtain the number of blocked banners
waiting for the determined seconds
			if((showAdManagementModule) && (showAdsFreeStats) &&
(uriObjectBlockedAdsFree)) {
				dom.jquery.ajax({
					url: uriObjectBlockedAdsFree,
					success: function(data) {
						if(data == "-1") {
								dom.jquery("#" +
adcontrolnumberblockedbannersId).hide();
							dom.jquery("#" +
adcontrolstatslinkId).show();
						}
						else {
							dom.jquery("#" + adcontrolstatslinkId).hide();
							dom.jquery("#" +
adcontrolnumberblockedbannersId).show();
							dom.jquery("#" +
adcontrolnumberblockedbannersId).text(data);
						}
					}
				});
			}
		}
		else if (dom.jquery("#" + IconVodafoneContainerId).css('position') ==
'relative') {
		dom.jquery("#" + IconVodafoneContainerId).css('margin-bottom',
"auto");
		}

		__panel1.slideToggle('slow');
			__panel2.slideToggle('slow');

			if(__isOpen) {
				setTimeout(function(){
					dom.jquery("#" + IconVodafoneWholeId).show();
				},700);

				// Redmine 37262: Make icon content scrollable just when it takes
up all the screen
				dom.jquery("div#" + IconVodafoneContainerId).css("height",
"5px");
				dom.jquery("div#" + IconVodafoneContainerId).css("overflow",
"visible");
			} else {
				dom.jquery("#" + IconVodafoneWholeId).hide();

				// Redmine 37262: Make icon content scrollable just when it takes
up all the screen (and just for mobile devices)
```

```
                    dom.jquery("div#" + IconVodafoneContainerId).css("height",
newMargin - 15);
                    if(window.mobilecheck() && ((navigator.userAgent.match(/iPad/i)
== null) || (window.orientation == 0)) &&
                      (parseInt(dom.jquery("div#" +
IconVodafoneContainerId).css("height")) >= getViewportWidth().height))
                    {
                          dom.jquery("div#" + IconVodafoneContainerId).css("height",
"100%");
                          //dom.jquery("div#" +
IconVodafoneContainerId).css("overflow", "scroll");
                    } else
                          dom.jquery("div#" +
IconVodafoneContainerId).css("overflow", "visible");

                    // TODO: Works fine on PC, but is really slow on mobile.
                    // $("#IconVodafonePanel span, #IconVodafonePanel2
span").each(function () {
                    //            shrinkTextIfNeeded(this, Math.min($
(this).parent().width(),     getViewportWidth().width) - $(this).position().left);
                    //      });
              }

              dom.jquery("#" + iconbarId).removeClass('draggable');

              //#47287: WE DONT CHECK IF EVENT SOURCE IS USER OR SCRIPT. WE
DISCONNECT (and reconnect) EVERY TIME WE WANT TO CHANGE. ALFREDO
PROPOSED. THIS OPENS A DOOR TO SCRIPTS.
              //if(obs)
obs.observe( document.getElementById(IconVodafoneContainerId),
{ attributes:true, childList:true, subtree:true, characterData:true });

    }

        ////////////////////////////////////////////
    // Click event on whatever area of document //
    ////////////////////////////////////////////
    function onDocumentClick(p_event) {
              if (isOpen() && (p_event.which == 1)) {
                    onTabOpenClick();
              } else {
                    dom.jquery("#" + iconbarId).removeClass('draggable');
              }
    }

        ////////////////////////////////////////////////
    // Mouse up event on whatever area of document //
    ////////////////////////////////////////////////
    function onDocumentMouseUp(p_event) {
              dom.jquery("#" + iconbarId).removeClass('draggable');
    }

        ////////////////////////////////////////////////////////////////////////
    // Get the value of an URL parameter of the "OPTSmartBannerScript" script //
```

```
	////////////////////////////////////////////////////////////////////////
	function getURLVarFromScript(name){
		var regexp = new RegExp("[?|&]" + name + "(?:=([^&]*))?", "i");
		var res =
regexp.exec(decodeURIComponent(dom.jquery("#OPTSmartBannerScript").attr("
src")));
		if(res === null)
			return undefined;
		return res[1] || "";
	}

	  ////////////////////////////////
	// Get viewport width and height //
	////////////////////////////////
	  function getViewportWidth() {
		var e = document.documentElement || document.body;
		var a = 'client';
		//console.log('window[innerWidth]' + window["innerWidth"] +
'**e.tagName: ' + e.tagName + '**document.documentElement[clientWidth]: ' +
document.documentElement["clientWidth"] + '**document.body[clientWidth]: '
+ document.body["clientWidth"] + '**width : e[ ' + a + 'Width ]');
		return { width : e[ a+'Width' ] , height : e[ a+'Height' ] };
	}

	  ////////////////////////////////////////////////////////////////////////////
	// Decrease the container text font-size if the container width exceeds
maxwidth //
	////////////////////////////////////////////////////////////////////////////
	function shrinkTextIfNeeded(container, maxwidth) {
		if (dom.jquery(container).width() > maxwidth) {
			dom.jquery(container).css("font-size", "-=1");
			shrinkTextIfNeeded(container, maxwidth);
		}
	}

	dom.jquery(document).ready(
		function() {

			// Redmine #36691: Use the variable "version" to avoid minify
tools remove it
			// Redmine #38451: Move console.log to "ready" function
			console.log(version);

			// Avoid several icons when the host webpage is composed of
several frames
			for(var i=0; i<window.parent.frames.length; ++i) {
				try {

if(window.parent.frames[i].document.getElementById("OPTSmartBannerScript"))
{
					if(window.parent != window)
						return;
			else
```

```
                    if( document.getElementById(IconVodafoneContainerId) )
return;
                            }
                        } catch (ex) { }
                    }

                    dom.jquery("head").append(
                        '<style id="' + IconVodafoneStylesheetId + '"
type="text/css">' +
                        'html{box-sizing:border-box;-moz-box-sizing:border-box;}' +
                        'div#' + IconVodafoneContainerId + ' {' +
                        '    display: none;' +
                        '    height: 5px;' +
                        //Redmine: 42689
                        '    box-sizing:content-box;' +
                        '    padding-left: 10px !important;' +
                        '    padding-right: 10px !important;' +
                        '    margin: 0px auto;' +
                        '    overflow:visible;' +
                        '    position: absolute;' +
                        '    top: 0px !important;' +
                        '    width        : ' + getIconContainerWidth() + 'px;' +
                        '    z-index: 2147483647 !important;' +
                        '    font-size: 13px !important;' +
                        '}' +
                        ' div#' + IconVodafoneContainerId + ' * {' +
                        '    background: none;' +
                        '    border: none !important;' +
                        '    float: none !important;' +
                        '    font-size: 90%;' +
                        '    font-family: Arial, Helvetica, sans-serif !important;' +
                        '    font-weight: normal !important;' +
                        '    left:auto;' +
                        '    line-height: 2ex !important;' +
                        '    letter-spacing:0;' +
                        '    margin: 0 !important;' +
                        '    outline:none !important;' +
                        '    padding: 0 !important;' +
                        '    text-decoration: none !important;' +
                        '        text-transform: none !important;' +
                        '    text-shadow:none !important;' +
                        '    vertical-align:middle !important;' +
                        '    white-space:nowrap !important;' +
                        '    z-index: 2147483647 !important;' +
                        '    zoom: 1;' +
                        '}' +
                        ' div#' + IconVodafoneContainerId + ' td {' +
                        '    text-align: left !important;' +
                        '}' +
                        ' div#' + IconVodafoneContainerId  + ' {' +
                        '    bottom       : 0;' +
                        '    clear        : both !important;' +
                        '    margin-bottom: 10px !important;' +
                        //inigo'    margin-right : 13px !important;' +
```

```
                        //                  '    position     : absolute !important;' +
                        //'    width       : 100% !important;' +
                        '}' +
                        ' div#' + IconVodafoneButtonBarId + ', div#' +
adcontrolstatusId + ' {' +
                        '    bottom       : 0;' +
                        '    clear        : both !important;' +
                        '    margin-bottom: 0px !important;' +
                        '    margin-right : 13px !important;' +
                        //                  '    position     : absolute !important;' +
                        '    width        : 96% !important;' +
                        '}' +
                        ' div#' + IconVodafoneContainerId + '  button {' +
                        '    cursor              : pointer' +
                        '    display             : inline !important;' +
                        '    margin              : 10px 2px !important;' +
                        '    padding             : 5px 10px !important;' +
                        '}' +
                        ' div#' + IconVodafoneContainerId + '  button img {' +
                        '    margin              : 0 5px 0 0 !important;' +
                        '}' +
                        ' div#' + IconVodafoneContainerId + '  button span {' +
                        '    font-size           : 1.8em;' +
                        '    font-weight         : bold !important;' +
                        '    line-height         : 1em !important;' +
                        '}' +
                        ' div#' + IconVodafoneContainerId + ' .' +
IconVodafoneBoxGrayClass + ' {' +
                        '    background          : -moz-linear-gradient(top, #FDFDFD
0%, #E9E9E9 100%) !important;' +
                        '    background          : -webkit-gradient(linear, left top, left
bottom, color-stop(0%,#FDFDFD), color-stop(100%,#E9E9E9)) !important;' +
                        '    background          : -webkit-linear-gradient(top, #FDFDFD
0%,#E9E9E9 100%) !important;' +
                        '    background          : -o-linear-gradient(top, #FDFDFD
0%,#E9E9E9 100%) !important;' +
                        '    background          : -ms-linear-gradient(top, #FDFDFD
0%,#E9E9E9 100%) !important;' +
                        '    background          : linear-gradient(top, #FDFDFD
0%,#E9E9E9 100%) !important;' +
                        '    filter              :
progid:DXImageTransform.Microsoft.gradient(startColorstr="#FDFDFD",
endColorstr="#E9E9E9",GradientType=0) !important;' +
                        '    border              : #AFAFAF solid 1px !important;' +
                        '    -moz-border-radius   : 3px;' +
                        '    -ms-border-radius    : 3px;' +
                        '    -o-border-radius     : 3px;' +
                        '    -webkit-border-radius: 3px;' +
                        '    border-radius        : 3px;' +
                        '    color               : black;' +
                        '    font-weight         : bold !important;' +
                        '    width               : 95%  !important;' +
                        '    text-align          : center !important;' +
                        '}' +
```

```
                        ' div#' + IconVodafonePanelId + ', div#' +
IconVodafonePanel2Id + ' {' +
                        '    background-repeat: repeat-x !important;' +
                        '    background-position: 0 100% !important;' +
                        '    background-color: #ffffff !important;' +
                        '    -moz-box-sizing: content-box;' +
                        '    -moz-box-shadow:    0 5px 5px 5px #ccc;' +
                        '    -ms-box-shadow:     0 5px 5px 5px #ccc;' +
                        '    -o-box-shadow:      0 5px 5px 5px #ccc;' +
                        '    -webkit-box-shadow: 0 5px 5px 5px #ccc;' +
                        '    text-shadow: 0 1px 0 rgba(255, 255, 255, .8);' +
                        '    -moz-border-radius-bottomright: 5px;' +
                        '    -moz-border-radius-bottomleft: 5px;' +
                        '    -ms-border-radius-bottomright: 5px;' +
                        '    -ms-border-radius-bottomleft: 5px;' +
                        '    -o-border-radius-bottomright: 5px;' +
                        '    -o-border-radius-bottomleft: 5px;' +
                        '    -webkit-border-radius-bottomright: 5px;' +
                        '    -webkit-border-radius-bottomleft: 5px;' +
                        '    color: #999999;' +
                        '    display: none;' +
                        '    overflow: hidden !important;' +
                        '    position: relative !important;' +
                        '    white-space: nowrap !important;' +
                        '    width: 100%;' +
                        '    height: auto;' +
                        '}' +
                        ' div#' + IconVodafoneWholeId + ', div#' +
IconVodafonePanel2Id + ' {' +
                        '    text-align: left !important;' +
                        '}' +
                        ' div#' + IconVodafonePanelId + ', div#' +
IconVodafonePanel2Id + ' div.' + IconVodafonePanelLeftId + ', div#' +
IconVodafonePanelId + ' {' +
                        '    overflow-x:hidden !important;' +
                        '    overflow-y:auto !important;' +
                        '    position: absolute;' +
                        '    top: 0px !important;' +
                        '    width: 100% !important;' +
                        '    white-space:nowrap;' +
                        '}' +
                        ' div#' + IconVodafonePanelId + ', div#' +
IconVodafonePanel2Id + ' .' + IconVodafonePanelLeftClass + ' {' +
                        '    left: 0 !important;' +
                        '}' +
                        ' div#' + IconVodafoneContainerId + ' div#' +
IconVodafoneRedId + ' {' +
                        '    overflow:visible !important;' +
                        '    cursor: pointer' +
                        '}' +
                        ' img#' + iconbarimageId + ', img#' + iconbariconId + ',
img#' + iconbarbgId + ' {' +
                        '    box-shadow : none !important;' +
                        '    display    : inline !important;' +
```

```
                        '}' +
                        ' div#' + IconVodafoneContainerId + ' span {' +
                        '       white-space: -moz-pre-wrap !important;' +  /* Mozilla,
since 1999 */
                        '       white-space: -pre-wrap !important;' +      /* Opera 4-6 */
                        '       white-space: -o-pre-wrap !important;' +    /* Opera 7 */
                        '       white-space: pre-wrap !important;' +       /* css-3 */
                        '       word-wrap: break-word !important;' +       /* Internet
Explorer 5.5+ */
                        '       white-space: normal !important;' +
                        '}' +
                        ' img#' + iconCBimage + ' {' +
                        '    box-shadow : none !important;' +
                        '    display    : inline !important;' +
                        '}' +
                        ' img#' + adcontrolimage + ' {' +
                        '    box-shadow : none !important;' +
                        '    display    : inline !important;' +
                        '}' +
                        ' img#' + iconChevronImage + ' {' +
                        '    box-shadow : none !important;' +
                        '    display    : inline !important;' +
                        '}' +
                        ' svg { ' +
                        '       display        : inline !important;' +
                        '}' +
                        '</style>'
                    );

                    var closeIcon = '<?xml version="1.0" encoding="UTF-8"
standalone="no"?>' +
                                        '<svg width="24px" height="24px"
viewBox="0 0 24 24" version="1.1" xmlns="http://www.w3.org/2000/svg"
xmlns:xlink="http://www.w3.org/1999/xlink">' +
                                        '       <!-- Generator: Sketch 41.2 (35397) -
http://www.bohemiancoding.com/sketch -->' +
                                        '       <title>ic_close_24</title>' +
                                        '       <desc>Created with Sketch.</desc>' +
                                        '       <defs/>' +
                                        '       <g id="Page-1" stroke="none" stroke-
width="1" fill="none" fill-rule="evenodd">' +
                                        '               <g id="web_companion"
transform="translate(-316.000000, -93.000000)">' +
                                        '                       <g id="Group"
transform="translate(10.000000, 81.000000)">' +
                                        '                               <g id="close-r:10"
transform="translate(306.000000, 12.000000)">' +
                                        '                                       <g id="ICON-/-
CLOSE">' +
                                        '                                               <rect
id="Rectangle-path" x="0" y="0" width="24" height="24"/>' +
                                        '                                               <path
d="M3.14644661,3.85355339 L20.1464466,20.8535534
C20.3417088,21.0488155 20.6582912,21.0488155 20.8535534,20.8535534
```

```
C21.0488155,20.6582912 21.0488155,20.3417088 20.8535534,20.1464466
L3.85355339,3.14644661 C3.65829124,2.95118446 3.34170876,2.95118446
3.14644661,3.14644661 C2.95118446,3.34170876 2.95118446,3.65829124
3.14644661,3.85355339 Z" id="c33595e8-181e-4076-a9f0-227b8fdd48ef"
fill="#757575"/>' +
                                        '                                        <path
d="M3.85355339,20.8535534 L20.8535534,3.85355339
C21.0488155,3.65829124 21.0488155,3.34170876 20.8535534,3.14644661
C20.6582912,2.95118446 20.3417088,2.95118446 20.1464466,3.14644661
L3.14644661,20.1464466 C2.95118446,20.3417088 2.95118446,20.6582912
3.14644661,20.8535534 C3.34170876,21.0488155 3.65829124,21.0488155
3.85355339,20.8535534 Z" id="56502c87-b986-44ba-a730-3fc53d646431"
fill="#757575"/>' +
                                        '                                </g>' +
                                        '                            </g>' +
                                        '                        </g>' +
                                        '                    </g>' +
                                        '            </g>' +
                                        '</svg>';

                    var configIcon = '<?xml version="1.0" encoding="UTF-8"
standalone="no"?>' +
                                                '<svg width="32px" height="32px"
viewBox="0 0 32 32" version="1.1" xmlns="http://www.w3.org/2000/svg"
xmlns:xlink="http://www.w3.org/1999/xlink">' +
                                                '        <!-- Generator: Sketch 41.2
(35397) - http://www.bohemiancoding.com/sketch -->' +
                                                '        <title>ic_settings_32</title>' +
                                                '        <desc>Created with
Sketch.</desc>' +
                                                '        <defs/>' +
                                                '        <g id="Page-1" stroke="none"
stroke-width="1" fill="none" fill-rule="evenodd">' +
                                                '                <g id="web_companion"
transform="translate(-20.000000, -287.000000)">' +
                                                '                        <g id="Group"
transform="translate(10.000000, 271.000000)">' +
                                                '                                <g id="I:10"
transform="translate(10.000000, 16.000000)">' +
                                                '                                        <g id="ICON-/-
SETTINGS">' +
                                                '                                                <rect
id="Rectangle-path" x="0" y="0" width="32" height="32"/>' +
                                                '                                                <path
d="M25.0922838,25.7300764 C25.4087752,25.9135711
25.8140128,25.8077373 26.0003621,25.4929183 L29.1770288,20.1262516
C29.3657527,19.8074211 29.2583115,19.3958756 28.9378211,19.2099844
L26.156838,17.5969561 C26.3135826,16.608978 26.3229272,15.6031727
26.1845586,14.6124367 L28.9955465,13.018232 C29.317851,12.8354424
29.4292652,12.4249103 29.2435891,12.10426 L26.1185891,6.70759332
C25.9352812,6.3910328 25.5311287,6.28130771 25.2128999,6.46170387
L22.4241487,8.04257901 C21.6284367,7.40948084 20.7436101,6.89728752
19.7983333,6.52258634 L19.7983333,3.33333333 C19.7983333,2.9651435
19.4998565,2.66666667 19.1316667,2.66666667 L12.8466667,2.66666667
```

C12.4784768,2.66666667 12.18,2.9651435 12.18,3.33333333
L12.18,6.50897613 C11.248259,6.87422091 10.3745571,7.37305083
9.58638216,7.98977895 L6.85114998,6.4033152 C6.53485808,6.21986253
6.12982362,6.32540673 5.94328365,6.63988772 L2.75995032,12.0065544
C2.57070405,12.3255978 2.67828047,12.7377588 2.99930915,12.9236175
L5.7642473,14.5243712 C5.61879259,15.505883 5.61859908,16.5034848
5.76366676,17.4850394 L3.00388892,19.0537552 C2.68198339,19.2367331
2.5708621,19.6469762 2.75641094,19.9674067 L5.88141094,25.3640733
C6.06445055,25.6801705 6.46777068,25.790116 6.78590426,25.6106391
L9.59733148,24.024556 C10.3844729,24.6394252 11.2566947,25.1368051
12.1866667,25.5011295 L12.1866667,28.6666667 C12.1866667,29.0348565
12.4851435,29.3333333 12.8533333,29.3333333 L19.1383333,29.3333333
C19.5065232,29.3333333 19.805,29.0348565 19.805,28.6666667
L19.805,25.5816277 C20.8259962,25.3588124 21.7892011,24.9233752
22.6314258,24.3033253 L25.0922838,25.7300764 Z M13.52,28 L13.52,25.035
C13.52,24.7492586 13.3379031,24.495292 13.0672749,24.4035941
C11.9795327,24.0350304 10.9724865,23.4614565 10.1006059,22.7138961
C9.8877114,22.5313579 9.5833438,22.501567 9.33909574,22.6393609
L6.70491462,24.1254496 L4.24701409,19.8808192 L6.82944442,18.4129115
C7.07880611,18.271169 7.20955322,17.9858156 7.15407994,17.7043997
C6.93309905,16.583364 6.93309905,15.4299694 7.15407994,14.3089336
C7.20917764,14.029423 7.08057485,13.745789 6.83402418,13.6030491
L4.25044785,12.1072944 L6.75325052,7.88790983 L9.31718335,9.37501813
C9.5626087,9.51736744 9.87124069,9.48878871 10.0863546,9.30379432
C10.9598685,8.55258705 11.9696568,7.97631766 13.0607436,7.60636006
C13.3313023,7.51462099 13.5133333,7.26068885 13.5133333,6.975
L13.5133333,4 L18.465,4 L18.465,6.98666667 C18.465,7.27136307
18.6457885,7.52464335 18.915035,7.61715472 C20.0172453,7.99586705
21.0354078,8.58505217 21.9129661,9.3519823 C22.1262459,9.53837527
22.4340217,9.56964762 22.6804335,9.42996279 L25.2957669,7.94739396
L27.7526578,12.1902808 L25.1227868,13.681768 C24.8748619,13.8223745
24.7437476,14.1050396 24.7965322,14.3851303 C25.009532,15.5153702
24.9984792,16.67644 24.7640013,17.8024201 C24.7054271,18.083698
24.8336474,18.3708621 25.0821789,18.5150156 L27.6870302,20.0258838
L25.1894989,24.2452178 L22.9093829,22.923257 C22.6665204,22.7824507
22.3614728,22.8088711 22.1464359,22.9893365 C21.2636989,23.7301557
20.1894978,24.206305 19.0477743,24.362846 C18.7176678,24.4081067
18.4716667,24.6901384 18.4716667,25.0233333 L18.4716667,28 L13.52,28 Z
M21.3219224,15.6533157 C21.1477839,12.9810182 19.0189818,10.8522161
16.3466843,10.6780776 C14.1309295,10.5336895 12.0575363,11.7772317
11.141521,13.7999361 C10.2255057,15.8226405 10.6585424,18.2012611
12.2286406,19.7713594 C13.7987389,21.3414576 16.1773595,21.7744943
18.2000639,20.858479 C20.2227683,19.9424637 21.4663105,17.8690705
21.3219224,15.6533157 Z M17.6500171,19.6438901 C16.1329888,20.3309015
14.3490234,20.006124 13.1714497,18.8285503 C11.993876,17.6509766
11.6690985,15.8670112 12.3561099,14.3499829 C13.0431214,12.8329546
14.5981663,11.9002979 16.2599824,12.008589 C18.2642055,12.1391929
19.8608071,13.7357945 19.991411,15.7400176 C20.0997021,17.4018337
19.1670454,18.9568786 17.6500171,19.6438901 Z" id="Combined-Shape"
fill="#757575"/>' +
'</g>' +
'</g>' +
'</g>' +
'</g>' +

```
                                                '      </g>' +
                                                '</svg>';

                    var chevronIcon = '<?xml version="1.0" encoding="UTF-8"
standalone="no"?>' +
                                                '<svg width="24px" height="24px"
viewBox="0 0 24 24" version="1.1" xmlns="http://www.w3.org/2000/svg"
xmlns:xlink="http://www.w3.org/1999/xlink">' +
                                                '      <!-- Generator: Sketch 41.2
(35397) - http://www.bohemiancoding.com/sketch -->' +
                                                '      <title>ic_chevron_24</title>' +
                                                '      <desc>Created with
Sketch.</desc>' +
                                                '      <defs/>' +
                                                '      <g id="Symbols" stroke="none"
stroke-width="1" fill="none" fill-rule="evenodd">' +
                                                '            <g id="ICON-/-CHEVRON-
RIGHT">' +
                                                '                  <g id="Group-2">' +
                                                '                        <rect
id="Rectangle-path" transform="translate(12.000000, 12.000000) rotate(-
90.000000) translate(-12.000000, -12.000000) " x="0" y="0" width="24"
height="24"/>' +
                                                '                        <polyline
id="259e14f8-3d8b-4ae1-b945-69f9c598b490" stroke="#757575" stroke-
linecap="round" stroke-linejoin="round" points="7.75 3.5 16.25 12 7.75 20.5"/>'
+
                                                '                  </g>' +
                                                '            </g>' +
                                                '      </g>' +
                                                '</svg>';

                    dom.jquery('body').prepend('<div id="' +
IconVodafoneContainerId + '" style="position:absolute;top:0px;left:0px;z-
index:2147483647;display:block;min-height:5px;direction:ltr;-webkit-transform:
translate3d(0, 0, 0);">'  +
                        '<div id="' + IconVodafoneWholeId + '">'  +
                    '<div id="' + IconVodafoneRedId + '"   style="background:
#E60000 !important;"></div>'  +
                    '<div id="' + iconbarId + '" style="cursor: pointer; position:
absolute; top: 0px !important;">'  +
                        '<div id="' + iconbarbgId + '" style="max-width:none !
important; position: absolute; top: 0px !important;" />'  +
                    '<div id="' + iconbarimageId + '" style="max-width:none !
important; position: absolute; top: 0px !important;" />'  +
                    '</div></div>'  +
                    '<div id="' + IconVodafonePanelId + '" style="height: auto; -
moz-box-sizing: content-box !important;">'  +
                    '<div id="' + IconVodafonePanelLinksId + '" style="margin-
right: 13px !important; width: 96% !important;">'  +
                    '<div class="' + IconVodafonePanelLeftClass + '" id="' +
IconVodafonePanelLeftId + '">'  +
                        '<div id="' + IconVodafonePopularId + '">'  +
```

```
                    '<div style="margin-left: 10px ! important; padding-top: 7px !
important; ">'  +

                        '<div style="display:inline-block !important; float:left !
important">'  +
                            '<div id="' + iconbariconId + '" style="display: inline;
width: 64px; height: 64px;" />' +
                            '<span style="font-size: 20px !important; font-weight:
bold !important; padding-left:10px !important; letter-spacing: 0.14px; color:
#313131 !important;">'  +
                            overlayText.header + '</span>'  +
                        '</div>' +

                        '<div style="width: 24px; height:24px; display:inline !
important; float:right !important; padding-top:3px !important">' +
                            closeIcon +
                        '</div>' +
                        '<div style="float: clear !important;"></div>' +
                    '</div>'  +
                    '<div id="' + IconVodafoneTabId + '" style="float:left !
important; display:block !important;background: none repeat scroll 0px 0px
#EBEBEB ! important; cursor: auto; height: 1px !important; margin-top: 8px !
important; width: 100% ! important; margin-left: 0px !important;">'  +
                    '</div>'  +
                    '</div>'  +
                    '</div>'  +
                    '</div>'  +
                    '</div>'  +
                    '<div id="' + IconVodafonePanel2Id + '" style="-moz-box-
sizing: content-box !important;">'  +
                    '<div id="' + IconMainHeaderIconId + '" style="min-height:
60px important!; padding-top: 14px ! important; z-index: 1;  padding-bottom:
15px !important; padding-left: 10px !important;">'  +
                    '<span style="font-size: 16px !important; color:#333333 !
important; letter-spacing: 0.11px !important;">'  +
                    overlayText.protectionLevelTitle + '</span>'  +
                    '<span id="' + protectionlevelId + '" style="font-size: 16px !
important;color:#333333 !important;letter-spacing: 0.11px
!important;"></span>'  +
                    '<table id="' + IconVodafoneProtectionLevelTableId + '"
cellspacing="0" style="width:100% !important" width="100%">'  +
                    '<tr><td colspan="5" style="padding-bottom: 10px !
important;">'  +
                    '<tr style="display:table-row;">'  +
                    '<td width="5%" id="' + lowId + '" style="display:table-cell;
border-top-left-radius: 2px; border-bottom-left-radius: 2px;"> </td>'  +
                    '<td width="40%" id="' + mediumId + '" style="display:table-
cell;"> </td>'  +
                    '<td width="45%" id="' + strongId + '" style="display:table-
cell;border-top-right-radius: 2px; border-bottom-right-radius:
2px;"> </td>'  +
                    '<td width="5%" id="' + finId + '" style="display:table-
cell;"> </td>'  +
                    '</tr>'  +
```

```
                    '</table>'  +
                    '</div>'  +
                        '<div id="' + IconVodafoneTabIdHM + '" style="float:left !
important; display:block !important;background: none repeat scroll 0px 0px
#EBEBEB ! important; cursor: auto; height: 1px !important; margin-top: 0px !
important; width: 100% ! important; margin-left: 0px !important;">'  +
                        '</div>' +

                        '<div style="min-height: 62px !important; min-height:78px !
important; padding-top: 11px ! important; z-index: 1; padding-left: 10px !
important; padding-right:10px !important;" id="' + explanationTextId + '">' +
                        '<span style="font-size: 16px !important;color: #333333 !
important; letter-spacing: 0.11px !important;">' +
overlayText.explanationTextHeader + '</span>' +
                        '</br>' + '</br>' +
                        '<span style="font-size: 14px !important; color: #666666 !
important; letter-spacing: 0.1px !important; line-height: 18px !important;">' +
overlayText.explanationTextBody + '</span>' +
                        '</div>' +

                        '<div id="' + IconVodafoneButtonBarId + '" style="min-
height: 64px !important; padding-left: 10px !important; padding-top: 16px !
important; padding-bottom: 16px !important; ">'  +
                        '<div style="display:inline-block !important; float: left !
important;">' +
                        '<div id="' + iconCBimage + '" style="display: inline; width:
32px; height: 32px; text-align: left;"></div>' +
                        '<span '+ '" id="' + IconVodafoneStatsId + '" style="font-
size: 16px !important; padding-left: 10px !important; color: #333333 !important;
letter-spacing: 0.11px !important; width: 244px !important;">' +
overlayText.settingsButton + '</span>'  +
                        '</div>' +
                        '<div id="' + iconChevronImage + '" style="display: inline;
width: 24px; height: 24px; padding-top: 4px !important; float: right !important;
cursor: pointer !important;"></div>' +
                        '</div>' +

                        '<div id="' + adcontrolstatusId + '" style="min-height: 64px
important!; padding-left: 10px !important; padding-top: 16px !important;
padding-bottom: 23px !important; ">'  +
                        '<div id="' + adcontrolimage + '" style="display: inline;
width: 32px; height: 32px; text-align: left;"></div>' +
                        '<span '+ '" id="' + adcontrolstatustextId + '" style="font-
size: 16px !important; padding-left: 10px !important; color: #333333 !important;
letter-spacing: 0.11px !important; display: inline-block !important; width: 244px !
important;">' + overlayText.adcontrolStatusUndef + '</span>'  +
                        '<br />' +
                        '<a id="' + adcontrollinkId + '" href="#" style="font-size:
14px !important; color:#666666 !important; letter-spacing: 0.1px !important;
line-height: 18px !important; padding-left: 40px !important; text-decoration:
underline !important;">' + overlayText.adcontrolLinkTextUndef + '</a>' +
                        '</div>' +
```

```
                        '<div id="' + adcontrolstatsId + '" style="padding-top:
10px !important; z-index: 1;  padding-bottom: 10px !important; padding-left:
10px !important;">' +
                    '<span id="' + adcontrolstatstextId + '" style="font-size:
1.4em !important; color:#000000 !important; padding-top: 20px !important;
padding-left: 10px !important;">'  +
                        overlayText.adcontrolBlockedBanners + '</span>' +
                        '<span id="' + adcontrolnumberblockedbannersId + '"
style="font-size: 1.4em !important; color:#000000 !important; padding-top:
20px !important; font-weight: bold !important;">'  +
                        '</span><br>' +
                        '<a id="' + adcontrolstatslinkId + '" style="font-size:
1.4em !important; color:#000000 !important;text-decoration: underline !
important;font-style:italic !important;" href="#" onclick="location.reload(true);
return false;">' + overlayText.blockedBannersTimeoutWarning + '</a>' +
                        '<br />' + '<br />' +
                        '</div>' +

                    /*'<div id="' + IconVodafoneTabId + '" style="background:
#FFFFFF !important;"></div>'  +
                    '<div id="' + IconVodafoneTabLineId + '" style="background:
none repeat scroll 0 0 #666666 !important; cursor: auto; height: 1px ! important;
margin-top: 1px ! important; width: 12px ! important; margin-left: 5px !
important; cursor: pointer;"></div>'  +
                    '<div id="' + IconVodafoneGreyFullId + '" style="background:
none repeat scroll 0 0 #AFAFAF !important; cursor: auto; height: 4px ! important;
margin-top: 2px ! important; width: 100% ! important; margin-left: 0px !
important; cursor: pointer;"></div>' +
                    '</div>'  +*/
                    '</div>'
                );

                if( !showExplanationTextModule ) {
                        dom.jquery('#' + explanationTextId).hide();
                }

                if( showConfigButtonModule ){
                        dom.jquery("#" + iconCBimage).append(configIcon);
                        dom.jquery("#" + iconCBimage + " svg").css("width",
"32px").css("height", "32px");
                        dom.jquery("#" + iconChevronImage).append(chevronIcon);
                        dom.jquery("#" + iconChevronImage + " svg").css("width",
"24px").css("height", "24px");

                } else {
                        dom.jquery('#' + IconVodafoneButtonBarId).hide();
                }

                if( !showAdManagementModule ) {
                        dom.jquery('#' + adcontrolstatusId).hide();
                }

                // Redmine #37468: Force left alignment of "Vodafone Secure
Net" header just for non-rtl webpages.
```

```
                    /*if(dom.jquery("body").css("direction") != "rtl")
                          dom.jquery("#" + IconVodafonePopularId + " *").css("text-
align", "left", "important");*/

                    // Make the icon draggable
                    dom.jquery("#" + iconbarId).drags();

                    // Definition of SVG format of images
                                                var redIconUnfolded = '<?xml
version="1.0" encoding="UTF-8"?>' +
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                
vg width="111px" height="111px" viewBox="0 0 111 111" version="1.1"
xmlns="http://www.w3.org/2000/svg"
xmlns:xlink="http://www.w3.org/1999/xlink">' +
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                
itle>logo_unfolded_new</title>' +
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                
        <g id="logo_unfolded_new" stroke="none" stroke-width="1" fill="none"
fill-rule="evenodd">' +
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                
                  <g id="shield" transform="translate(5.000000, 6.000000)" fill-
rule="nonzero">' +
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                
                        <path d="M48.1661582,4.10276836
C21.529548,20.7649153 5.13559322,6.17983051 5.13559322,14.5166102
C5.13559322,71.0594915 42.0376836,90.0840113 49.0734463,93.1938983
C49.8011327,93.5114867 50.6282459,93.5114867 51.3559322,93.1938983
C58.3859887,90.0840113 95.2937853,71.0594915 95.2937853,14.5166102
C95.2937853,6.15700565 78.8998305,20.7934463 52.2632203,4.10276836
C51.0100045,3.31892931 49.4193741,3.31892931 48.1661582,4.10276836 Z"
id="Shape" fill="#E60000"></path>' +
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                
                        <path d="M50.2146893,3.50912717
C49.4919095,3.5041407 48.7821731,3.70183886 48.1661582,4.0799435
C21.529548,20.7649153 5.13559322,6.17983051 5.13559322,14.5166102
C5.13559322,71.0594915 42.0376836,90.0840113 49.0734463,93.1938983
C49.4328847,93.3534664 49.82143,93.4370037 50.2146893,93.4392655
L50.2146893,3.50912717 Z" id="Shape" fill="#B20000"></path>' +
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                
                        <path d="M48.1661582,5.23830508
C49.4201536,4.45718696 51.009225,4.45718696 52.2632203,5.23830508
C78.5745763,21.6836158 94.8829379,7.6520339 95.2937853,15.3554237
C95.2937853,15.0758192 95.2937853,14.7848023 95.2937853,14.510904
C95.2937853,6.15129944 78.8998305,20.7877401 52.2632203,4.09706215
C51.009225,3.31594402 49.4201536,3.31594402 48.1661582,4.09706215
C21.529548,20.7649153 5.13559322,6.17983051 5.13559322,14.5166102
C5.13559322,14.8019209 5.13559322,15.0872316 5.13559322,15.3611299
C5.54644068,7.68056497 21.8605085,21.6836158 48.1661582,5.23830508 Z"
id="Shape" fill="#FFFFFF" opacity="0.2"></path>' +
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                
                        <path d="M51.3559322,92.0526554
C50.6282459,92.3702437 49.8011327,92.3702437 49.0734463,92.0526554
C42.0776271,88.9541808 5.52361582,70.1065537 5.13559322,14.2655367
C5.13559322,14.3568362 5.13559322,14.4481356 5.13559322,14.539435
```

```
C5.13559322,71.0823164 42.0376836,90.1068362 49.0734463,93.2167232
C49.8011327,93.5343115 50.6282459,93.5343115 51.3559322,93.2167232
C58.3859887,90.1068362 95.2937853,71.0823164 95.2937853,14.539435
C95.2937853,14.4424294 95.2937853,14.3511299 95.2937853,14.2655367
C94.9114689,70.1065537 58.3574576,88.9541808 51.3559322,92.0526554 Z"
id="Shape" fill="#1D1D1B" opacity="0.2"></path>' +
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                
'
                </g>' +
'
        </g>' +
'</
svg>';

var redIconFolded = '<?xml version="1.0"
encoding="UTF-8"?>' +
'<s
vg width="115px" height="113px" viewBox="0 0 115 113" version="1.1"
xmlns="http://www.w3.org/2000/svg"
xmlns:xlink="http://www.w3.org/1999/xlink">' +
'
<title>logo_folded_new</title>' +
'
<g id="logo_folded_new" stroke="none" stroke-width="1" fill="none" fill-
rule="evenodd">' +
'
<g id="Shape">' +
'
<path d="M0,0 L115,0 L115,56 C115,86.927946 89.927946,112 59,112 L56,112
C25.072054,112 3.78758101e-15,86.927946 0,56 L0,0 L0,0 Z" id="Fill"
fill="#FFFFFF"></path>' +
'
<path d="M115,0 L115,56 C115,86.927946 89.927946,112 59,112 L56,112
C25.072054,112 0,86.927946 0,56 L0,0 L115,0 Z M113,2 L2,2 L2,56
C2,85.5251427 25.6955087,109.515903 55.1070113,109.992766 L56,110
L59,110 C88.5251427,110 112.515903,86.3044913 112.992766,56.8929887
L113,56 L113,2 Z" id="Outline" fill="#979797" fill-rule="nonzero"></path>' +
'
<polygon id="Red-Stroke" fill="#E60000" fill-rule="nonzero" points="115 0 115
5 0 5 0 0"></polygon>' +
'
</g>' +
'
<g id="shield" transform="translate(16.000000, 15.000000)" fill-
rule="nonzero">' +
'
<path d="M39.5820904,3.37158192 C17.6925989,17.0642373
4.22033898,5.07847458 4.22033898,11.9294915 C4.22033898,58.3954237
34.5458192,74.029435 40.3276836,76.5850847 C40.9256833,76.8460732
41.6053902,76.8460732 42.2033898,76.5850847 C47.980565,74.029435
78.3107345,58.3954237 78.3107345,11.9294915 C78.3107345,5.05971751
64.8384746,17.0876836 42.9489831,3.37158192 C41.9191126,2.72743695
40.6119609,2.72743695 39.5820904,3.37158192 Z" id="Shape"
fill="#E60000"></path>' +
```

```
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                
'
<path d="M41.2655367,2.88373817 C40.6715692,2.87964037
40.0883205,3.0421052 39.5820904,3.35282486 C17.6925989,17.0642373
4.22033898,5.07847458 4.22033898,11.9294915 C4.22033898,58.3954237
34.5458192,74.029435 40.3276836,76.5850847 C40.6230637,76.716215
40.9423633,76.7848644 41.2655367,76.7867232 L41.2655367,2.88373817 Z"
id="Shape" fill="#B20000"></path>' +
'
<path d="M39.5820904,4.30474576 C40.6126014,3.66283681
41.918472,3.66283681 42.9489831,4.30474576 C64.5711864,17.819209
77.9731073,6.28830508 78.3107345,12.6188136 C78.3107345,12.3890395
78.3107345,12.149887 78.3107345,11.9248023 C78.3107345,5.05502825
64.8384746,17.0829944 42.9489831,3.36689266 C41.918472,2.7249837
40.6126014,2.7249837 39.5820904,3.36689266 C17.6925989,17.0642373
4.22033898,5.07847458 4.22033898,11.9294915 C4.22033898,12.1639548
4.22033898,12.3984181 4.22033898,12.6235028 C4.5579661,6.31175141
17.9645763,17.819209 39.5820904,4.30474576 Z" id="Shape" fill="#FFFFFF"
opacity="0.2"></path>' +
'
<path d="M42.2033898,75.6472316 C41.6053902,75.9082201
40.9256833,75.9082201 40.3276836,75.6472316 C34.5786441,73.1009605
4.53920904,57.6123164 4.22033898,11.7231638 C4.22033898,11.7981921
4.22033898,11.8732203 4.22033898,11.9482486 C4.22033898,58.4141808
34.5458192,74.0481921 40.3276836,76.6038418 C40.9256833,76.8648303
41.6053902,76.8648303 42.2033898,76.6038418 C47.980565,74.0481921
78.3107345,58.4141808 78.3107345,11.9482486 C78.3107345,11.8685311
78.3107345,11.7935028 78.3107345,11.7231638 C77.9965537,57.6123164
47.9571186,73.1009605 42.2033898,75.6472316 Z" id="Shape" fill="#1D1D1B"
opacity="0.2"></path>' +
'
</g>' +
'
</g>' +
'</
svg>';

                var adControlIcon = '<?xml version="1.0" encoding="utf-8"?>' +
                                '<svg width="32px" height="33px"
viewBox="0 0 32 33" version="1.1" xmlns="http://www.w3.org/2000/svg"
xmlns:xlink="http://www.w3.org/1999/xlink">' +
                                '<!-- Generator: Sketch 41.2 (35397) -
http://www.bohemiancoding.com/sketch -->' +
                                '      <title>ic_block</title>' +
                                '      <desc>Created with
Sketch.</desc>' +
                                '      <defs/>' +
                                '      <g id="Page-1" stroke="none"
stroke-width="1" fill="none" fill-rule="evenodd">' +
                                '            <g id="web_companion"
transform="translate(-20.000000, -364.000000)">' +
                                '                  <g id="Group"
transform="translate(10.000000, 335.000000)">' +
                                '                        <g id="block-l:10"
transform="translate(10.000000, 29.500000)">' +
```

```
                                                '                                <g id="ICON-/-
BLOCK">' +
                                                '                                    <g>' +
                                                '                                        <rect
id="Rectangle-path-@fullwidth-@fullheight" x="0" y="0" width="32"
height="32"/>' +
                                                '                                        <g
id="Group-2" transform="translate(2.000000, 2.000000)" fill="#757575">' +
                        '                                            <path
d="M14,27.3333333 C21.3637967,27.3333333 27.3333333,21.3637967
27.3333333,14 C27.3333333,6.63620334 21.3637967,0.666666667
14,0.666666667 C6.63620334,0.666666667 0.666666667,6.63620334
0.666666667,14 C0.666666667,21.3637967 6.63620334,27.3333333
14,27.3333333 Z M14,26 C7.372583,26 2,20.627417 2,14 C2,7.372583
7.372583,2 14,2 C20.627417,2 26,7.372583 26,14 C26,20.627417 20.627417,26
14,26 Z" id="Combined-Shape"/>' +
                        '                                            <polygon
id="Shape" points="5.51473785 23.4280712 23.4280712 5.51473785
22.4852621 4.57192881 4.57192881 22.4852621"/>' +
                                                '
</g>' +
                                                '                                    </g>' +
                                                '                                <g>' +
                                                '                            </g>' +
                                                '                        </g>' +
                                                '                    </g>' +
                                                '                </g>' +
                                                '            </g>' +
                                                '</svg>';

                // Append images to corresponding divs and set SVGs width and
height
                dom.jquery("#" + iconbarimageId).append(redIconFolded);
                dom.jquery("#" + iconbarbgId + " svg, #" + iconbarimageId + "
svg, #" + iconbarId).css("width",  "48px").css("height", "48px");
                dom.jquery("#" + iconbariconId).append(redIconUnfolded);
                dom.jquery("#" + iconbariconId + " svg").css("width",
"32px").css("height", "32px");

                // Tunning icon's width and height
                dom.jquery("#" + IconVodafoneRedId).css('height','200%');
                if((dom.jquery("#" + IconVodafoneRedId).css('height') == "0px")
|| (parseInt(dom.jquery("#" + IconVodafoneRedId).css('height')) > 2))
                        dom.jquery("#" + IconVodafoneRedId).css('height',   '2px');

                // Redmine #37487: Determining icon width and height
depending on the configuration variables
                var iconSizeFactor;
                if((typeof iconSizeScreenPercentage === "undefined") ||
(iconSizeScreenPercentage < 1) || (iconSizeScreenPercentage > 100))
                        iconSizeFactor = 100/7;
                else
                        iconSizeFactor = 100/iconSizeScreenPercentage;
                var iconSize;
                if(getViewportWidth().width/iconSizeFactor < iconMinSizePx)
```

```
                iconSize = iconMinSizePx;
            else if(getViewportWidth().width/iconSizeFactor > iconMaxSizePx)
                iconSize = iconMaxSizePx;
            else
                iconSize = getViewportWidth().width/iconSizeFactor;

            dom.jquery("#" + iconbarimageId + " svg, #" + iconbarbgId + "
svg, #" + iconbarId)
                .css("width",  iconSize)
                .css("height", iconSize);

            dom.jquery("#" + IconVodafoneContainerId).css("width",
getIconContainerWidth() + "px");

            // Get the value of the parameters received from WebFilter
            var policystate, modality, view, uriAd, ui, policystateadsfree,
inadwhitelist, uriMutationRequest, uriAuditRequest;
            if(window.g_icon_parameters) { // Global variable does exist =>
New version of WebFilter
                if(window.g_icon_parameters.hasOwnProperty("policystate"))
                    policystate = window.g_icon_parameters.policystate;
                else
                    policystate = getURLVarFromScript('policystate');
                if(window.g_icon_parameters.hasOwnProperty("modality"))
                    modality = window.g_icon_parameters.modality;
                else
                    modality = getURLVarFromScript('modality');
                if(window.g_icon_parameters.hasOwnProperty("view"))
                    view = window.g_icon_parameters.view;
                else
                    view = getURLVarFromScript('view');
                if(window.g_icon_parameters.hasOwnProperty("uriAd"))
                    uriAd = window.g_icon_parameters.uriAd;
                else
                    uriAd = getURLVarFromScript('uriAd');
                if(window.g_icon_parameters.hasOwnProperty("ui"))
                    ui = window.g_icon_parameters.ui;
                else
                    ui = getURLVarFromScript("ui");

if(window.g_icon_parameters.hasOwnProperty("policystateadsfree"))
                    policystateadsfree =
window.g_icon_parameters.policystateadsfree;
                else
                    policystateadsfree =
getURLVarFromScript("policystateadsfree");

if(window.g_icon_parameters.hasOwnProperty("inadwhitelist"))
                    inadwhitelist =
window.g_icon_parameters.inadwhitelist;
                else
                    inadwhitelist = getURLVarFromScript("inadwhitelist");

if(window.g_icon_parameters.hasOwnProperty("uriMutationRequest"))
```

```
                                uriMutationRequest =
window.g_icon_parameters.uriMutationRequest;
                        else
                                uriMutationRequest =
getURLVarFromScript("uriMutationRequest");

if(window.g_icon_parameters.hasOwnProperty("uriAuditRequest"))
                                uriAuditRequest =
window.g_icon_parameters.uriAuditRequest;
                        else
                                uriAuditRequest =
getURLVarFromScript("uriAuditRequest");

if(window.g_icon_parameters.hasOwnProperty("uriObjectBlockedAdsFree"))
                                uriObjectBlockedAdsFree =
window.g_icon_parameters.uriObjectBlockedAdsFree;
                        else
                                uriObjectBlockedAdsFree =
getURLVarFromScript("uriObjectBlockedAdsFree");
                } else { // Global variable does NOT exist => Old version of
WebFilter
                        policystate = getURLVarFromScript('policystate');
                        modality = getURLVarFromScript('modality');
                        view = getURLVarFromScript('view');
                        uriAd = getURLVarFromScript('uriAd');
                        ui = getURLVarFromScript("ui");
                        policystateadsfree =
getURLVarFromScript("policystateadsfree");
                        inadwhitelist = getURLVarFromScript("inadwhitelist");
                        uriMutationRequest =
getURLVarFromScript("uriMutationRequest");
                        uriAuditRequest = getURLVarFromScript("uriAuditRequest");
                        uriObjectBlockedAdsFree =
getURLVarFromScript("uriObjectBlockedAdsFree");
                }

                // Protection level algorithm decision
        if(considerSSLInspectionForProtectionLevel) {
                        // Set protection level depending on the "policystate"
parameter
                        if(policystate == 259) {
                                dom.jquery("#" +
protectionlevelId).html(overlayText.protectionLevelHigh);
                                dom.jquery("#" + lowId).css('background-color',
'#A8B400');
                                dom.jquery("#" + mediumId).css('background-color',
'#A8B400');
                                dom.jquery("#" + strongId).css('background-color',
'#A8B400');
                        } else if((policystate == 0) || (policystate == 2)) {
                                dom.jquery("#" +
protectionlevelId).html(overlayText.protectionLevelLow);
                                dom.jquery("#" + lowId).css('background-color',
'red');
```

```
                                dom.jquery("#" + mediumId).css('background-color',
'grey');
                                dom.jquery("#" + strongId).css('background-color',
'grey');
                                // Set SVG red elements to grey
                                //dom.jquery("#ic_securenet_top path").css("fill",
"#737373");
                        } else {
                                dom.jquery("#" +
protectionlevelId).html(overlayText.protectionLevelMedium);
                                dom.jquery("#" + lowId).css('background-color',
'orange');
                                dom.jquery("#" + mediumId).css('background-color',
'orange');
                                dom.jquery("#" + strongId).css('background-color',
'grey');
                                // Set SVG red elements to grey
                                //dom.jquery("#ic_securenet_top path").css("fill",
"#737373");
                        }
                } else {
                        // Set protection level depending on the "policystate"
parameter
                        if(policystate == 2) {
                                dom.jquery("#" +
protectionlevelId).html(overlayText.protectionLevelHigh);
                                dom.jquery("#" + lowId).css('background-color',
'#A8B400');
                                dom.jquery("#" + mediumId).css('background-color',
'#A8B400');
                                dom.jquery("#" + strongId).css('background-color',
'#A8B400');
                        } else if(policystate == 1) {
                                dom.jquery("#" +
protectionlevelId).html(overlayText.protectionLevelMedium);
                                dom.jquery("#" + lowId).css('background-color',
'orange');
                                dom.jquery("#" + mediumId).css('background-color',
'orange');
                                dom.jquery("#" + strongId).css('background-color',
'grey');
                                // Set SVG red elements to grey
                                //dom.jquery("#ic_securenet_top path").css("fill",
"#737373");
                        } else {
                                dom.jquery("#" +
protectionlevelId).html(overlayText.protectionLevelLow);
                                dom.jquery("#" + lowId).css('background-color',
'red');
                                dom.jquery("#" + mediumId).css('background-color',
'grey');
                                dom.jquery("#" + strongId).css('background-color',
'grey');
                                // Set SVG red elements to grey
```

```
                        //dom.jquery("#ic_securenet_top path").css("fill",
"#737373");
                    }
                }

                // SNPlus modality clients must not have access to the
configuration (#30480)
                if(modality == 'snplus') {
                    dom.jquery("#" + IconVodafoneButtonBarId).hide();
                }

                // Set view style
                if(view == "small")
                    dom.jquery("#" + IconVodafoneRedId).hide();

                var uriAdCode = "";
                if(uriAd)
                    uriAdCode = "&uriAd=" + uriAd;
                var uiCode = "";
                if(ui)
                    uiCode = "&ui=" + ui;

                // Set AdControl
                if(showAdManagementModule) {
                    if(policystateadsfree == "0") {
                        dom.jquery("#" +
adcontrolstatustextId).html(overlayText.adcontrolStatusPaused);
                        //dom.jquery("#" +
adcontrollinkId).html(overlayText.adcontrolLinkTextUnpaused);
                        //dom.jquery("#" + adcontrollinkId).attr("href",
VodafoneSettingsURL + "/adwhitelist?action=activate" + uriAdCode + uiCode);
                        dom.jquery("#" + adcontrollinkId).hide();
                        dom.jquery("#" +
adcontrolimage).prepend(adControlIcon);
                    } else {
                        if(policystateadsfree == "1") {
                            dom.jquery("#" +
adcontrolimage).prepend(adControlIcon);
                            if(inadwhitelist == "0") {
                                dom.jquery("#" +
adcontrollinkId).html(overlayText.adcontrolLinkTextDisable);
                                dom.jquery("#" + adcontrollinkId).attr("href",
VodafoneSettingsURL + "/adwhitelist?action=add" + uriAdCode + uiCode);
                                dom.jquery("#" +
adcontrolstatustextId).html(overlayText.adcontrolStatusOn);
                            } else {
                                dom.jquery("#" +
adcontrollinkId).html(overlayText.adcontrolLinkTextReEnable);
                                dom.jquery("#" + adcontrollinkId).attr("href",
VodafoneSettingsURL + "/adwhitelist?action=remove" + uriAdCode + uiCode);
                                dom.jquery("#" +
adcontrolstatustextId).html(overlayText.adcontrolStatusDisabled);
                            }
                        }
```

```
                        else {
                            dom.jquery("#" + adcontrolstatusId).hide();
                            dom.jquery("#" + adcontrolsepbarId).hide();
                        }
                    }

                    if(showAdsFreeStats) {
                        if(uriObjectBlockedAdsFree)
                            dom.jquery("#" + adcontrolstatsId).show();
                        else
                            dom.jquery("#" + adcontrolstatsId).hide();
                    }
                    else
                        dom.jquery("#" + adcontrolstatsId).hide();
                } else {
                    dom.jquery("#" + adcontrolstatusId).hide();
                    dom.jquery("#" + adcontrolsepbarId).hide();
                    dom.jquery("#" + adcontrolstatsId).hide();
                }

                // Set AdControl SVG width and height
                dom.jquery("#" + adcontrolimage + " svg").css("width",
"32px").css("height", "32px");

                // Set events
                var eventsSetInterval = setInterval(function() {

                    dom.jquery(document).off('click').on('click',
onDocumentClick);
                    dom.jquery(document).on("mouseup",
onDocumentMouseUp);
                    dom.jquery("#" +
IconVodafoneButtonBarId).off('click').on('click', function (p_event) {
                        location.href = VodafoneSettingsURL;
                    });
                    dom.jquery("#" +
IconVodafoneContainerId).off('click').on('click', onTabOpenClick);

                    dom.jquery(window).off("resize").on("resize", function(event)
{

                        /* Disconnecting MutationObserver object to avoid
detecting user orientation change
                        if((obs) && (event) && (event.originalEvent)) {
                            if
(event.originalEvent.hasOwnProperty("isTrusted")) {
                                if (event.originalEvent.isTrusted)
                                    obs.disconnect();
                            } else
                                obs.disconnect();
                        }*/
                        //#47287: WE DONT CHECK IF EVENT SOURCE IS USER
OR SCRIPT. WE DISCONNECT (and reconnect) EVERY TIME WE WANT TO
CHANGE. ALFREDO PROPOSED. THIS OPENS A DOOR TO SCRIPTS.
```

```
                                if(obs) obs.disconnect();

                                // Redmine #37487: Determining icon width and height
depending on the configuration variables
                                var iconSizeFactor, iconSize;

                                if((typeof iconSizeScreenPercentage === "undefined")
|| (iconSizeScreenPercentage < 1) || (iconSizeScreenPercentage > 100))
                                        iconSizeFactor = 100/7;
                                else
                                        iconSizeFactor = 100/iconSizeScreenPercentage;

                                if(getViewportWidth().width/iconSizeFactor <
iconMinSizePx)
                                        iconSize = iconMinSizePx;
                                else if(getViewportWidth().width/iconSizeFactor >
iconMaxSizePx)
                                        iconSize = iconMaxSizePx;
                                else
                                        iconSize =
getViewportWidth().width/iconSizeFactor;

                                dom.jquery("#" + iconbarimageId + " svg, #" +
iconbarbgId + " svg")
                                        .css("width",  iconSize)
                                        .css("height", iconSize);

                                dom.jquery("#" +
IconVodafoneContainerId).css("width", getIconContainerWidth() + "px");

                                if(dom.jquery("#" + adcontrolstatustextId).css("width")
== "244px")
                                        dom.jquery("#" +
adcontrolstatustextId).css("width", "");
                                else
                                        dom.jquery("#" +
adcontrolstatustextId).css("width", "244px");

                                // #37262: Make icon content scrollable just when it
takes up all the screen (and just for mobile devices)
                                if (isOpen()) {
                                        var newHeight = dom.jquery("#" +
IconVodafonePanelId).height() + dom.jquery("#" +
IconVodafonePanel2Id).height() + 15;
                                        dom.jquery("div#" +
IconVodafoneContainerId).css("height", newHeight - 15);
                                        if(window.mobilecheck() &&
((navigator.userAgent.match(/iPad/i) == null) || (window.orientation == 0)) &&
                                           (parseInt(dom.jquery("div#" +
IconVodafoneContainerId).css("height")) >= getViewportWidth().height))
                                        {
                                                dom.jquery("div#" +
IconVodafoneContainerId).css("height", "100%");
```

```
                                        //dom.jquery("div#" +
IconVodafoneContainerId).css("overflow", "scroll");
                                    } else
                                        dom.jquery("div#" +
IconVodafoneContainerId).css("overflow", "visible");
                                }

                                //#47287: WE DONT CHECK IF EVENT SOURCE IS USER
OR SCRIPT. WE DISCONNECT (and reconnect) EVERY TIME WE WANT TO
CHANGE. ALFREDO PROPOSED. THIS OPENS A DOOR TO SCRIPTS.
                                if(obs)
obs.observe( document.getElementById(IconVodafoneContainerId),
{ attributes:true, childList:true, subtree:true, characterData:true });
                            });
                        }, 3000);

                        // Creating MutationObserver object
                        obs = new MutationObserver(function(mutations, observer){
                            mutations.forEach(function(mutation) {
                                clearInterval(eventsSetInterval);
                                clearInterval(stylesSetInterval);

                                // If detecting an attack, NO Audit Request must be
launch for indicating that the icon has been loaded
                                launchAuditRequest = false;

                                // Remove overlay icon from DOM when detecting an
attack
                                if(destroyIfMutationDetected)
                                    dom.jquery("#" +
IconVodafoneContainerId).remove();

                                // Launch GET request to indicate WF that an attack to
overlay icon has been made (uriMutationRequest)
                                if(uriMutationRequest)
                                    dom.jquery.get(uriMutationRequest, function( data
) {});
                            });
                        });

                        // Activating MutationObserver object

obs.observe( document.getElementById(IconVodafoneContainerId),
{ attributes:true, childList:true, subtree:true, characterData:true });

                        // Detect styles than may affect the icon
                        var stylesSetInterval = setInterval(function(){
                            var sheets = document.styleSheets;
                            var mySheetStyleRules = [];
                            var hostSheetStyleRules = [];
                            for (var i=0; i < sheets.length; ++i) {
                                var rules = sheets[i].rules || sheets[i].cssRules;
                                if(rules) {
                                    for (var r=0; r < rules.length; ++r) {
```

```
                                        if(rules[r].selectorText) {
                                                var ruleSet =
rules[r].selectorText.split(',');
                                                for(var j=0; j < ruleSet.length; ++j) {
                                                        var currentRule = ruleSet[j].split('
');
                                                        for(var k=0; k <
currentRule.length; k++) {
                                                                var hashPosition =
currentRule[k].indexOf('#');
                                                                if(hashPosition >= 0) {
                                                                        if(sheets[i].ownerNode.id
== IconVodafoneStylesheetId)

mySheetStyleRules.push(currentRule[k].substring(hashPosition));
                                                                        else

hostSheetStyleRules.push(currentRule[k].substring(hashPosition));
                                                                }
                                                        }
                                                }
                                        }
                                }
                        }
                        var found = false;
                        var mySheetIndex = 0;
                        var hostSheetIndex = 0;
                        while((!found) && (mySheetIndex <
mySheetStyleRules.length)) {
                                var currId = mySheetStyleRules[mySheetIndex];

                                while((!found) && (hostSheetIndex <
hostSheetStyleRules.length)) {

if(hostSheetStyleRules[hostSheetIndex].indexOf(currId) >= 0) {
                                        found = true;
                                        clearInterval(eventsSetInterval);
                                        clearInterval(stylesSetInterval);

                                        // If detecting an attack, NO Audit Request
must be launch for indicating that the icon has been loaded
                                        launchAuditRequest = false;

                                        // Remove overlay icon from DOM when
detecting an attack
                                        if(destroyIfMutationDetected)
                                                dom.jquery("#" +
IconVodafoneContainerId).remove();

                                        // Launch GET request to indicate WF that an
attack to overlay icon has been made (uriMutationRequest)
                                        if(uriMutationRequest)
```

```
                                        dom.jquery.get(uriMutationRequest,
function( data ) {});
                                }
                                else
                                        hostSheetIndex++;
                        }

                        if(!found)
                                mySheetIndex++;
                }
        }, 3000);

        // Launch GET request to indicate WF that overlay icon has been
correctly loaded (uriAuditRequest)
        if(launchAuditRequest)
                if(uriAuditRequest)
                        dom.jquery.get(uriAuditRequest, function( data ) {});
    }
  );
})();</script><style id="nbyHBxhLWRychr" type="text/css">html{box-
sizing:border-box;-moz-box-sizing:border-box;}div#TWeqGxerFXWHqi
{    display: none;    height: 5px;    box-sizing:content-box;    padding-left: 10px !
important;    padding-right: 10px !important;    margin: 0px auto;
overflow:visible;    position: absolute;    top: 0px !important;    width        : 960px;
z-index: 2147483647 !important;    font-size: 13px !important;}
div#TWeqGxerFXWHqi * {    background: none;    border: none !important;
float: none !important;    font-size: 90%;    font-family: Arial, Helvetica, sans-
serif !important;    font-weight: normal !important;    left:auto;    line-height:
2ex !important;    letter-spacing:0;    margin: 0 !important;    outline:none !
important;    padding: 0 !important;    text-decoration: none !important;        text-
transform: none !important;    text-shadow:none !important;    vertical-
align:middle !important;    white-space:nowrap !important;    z-index:
2147483647 !important;    zoom: 1;} div#TWeqGxerFXWHqi td {    text-align:
left !important;} div#TWeqGxerFXWHqi {    bottom       : 0;    clear        : both !
important;    margin-bottom: 10px !important;} div#TJNsrOIpPwo, div#KHAc
{    bottom       : 0;    clear        : both !important;    margin-bottom: 0px !
important;    margin-right : 13px !important;    width        : 96% !important;}
div#TWeqGxerFXWHqi  button {    cursor              : pointer    display             :
inline !important;    margin              : 10px 2px !important;    padding             :
5px 10px !important;} div#TWeqGxerFXWHqi  button img {    margin              :
0 5px 0 0 !important;} div#TWeqGxerFXWHqi  button span {    font-size           :
1.8em;    font-weight          : bold !important;    line-height          : 1em !
important;} div#TWeqGxerFXWHqi .xOoQKsd {    background           : -moz-
linear-gradient(top, #FDFDFD 0%, #E9E9E9 100%) !important;    background
: -webkit-gradient(linear, left top, left bottom, color-stop(0%,#FDFDFD), color-
stop(100%,#E9E9E9)) !important;    background           : -webkit-linear-
gradient(top, #FDFDFD 0%,#E9E9E9 100%) !important;    background           : -o-
linear-gradient(top, #FDFDFD 0%,#E9E9E9 100%) !important;    background
: -ms-linear-gradient(top, #FDFDFD 0%,#E9E9E9 100%) !important;
background           : linear-gradient(top, #FDFDFD 0%,#E9E9E9 100%) !
important;    filter              :
progid:DXImageTransform.Microsoft.gradient(startColorstr="#FDFDFD",
endColorstr="#E9E9E9",GradientType=0) !important;    border              :
#AFAFAF solid 1px !important;    -moz-border-radius   : 3px;    -ms-border-radius
```

: 3px; -o-border-radius : 3px; -webkit-border-radius: 3px; border-radius : 3px; color : black; font-weight : bold !important; width : 95% !important; text-align : center !important;} div#rvorcaHYZEjLTE, div#RMhiQhBmFFlpI { background-repeat: repeat-x !important; background-position: 0 100% !important; background-color: #ffffff !important; -moz-box-sizing: content-box; -moz-box-shadow: 0 5px 5px 5px #ccc; -ms-box-shadow: 0 5px 5px 5px #ccc; -o-box-shadow: 0 5px 5px 5px #ccc; -webkit-box-shadow: 0 5px 5px 5px #ccc; text-shadow: 0 1px 0 rgba(255, 255, 255, .8); -moz-border-radius-bottomright: 5px; -moz-border-radius-bottomleft: 5px; -ms-border-radius-bottomright: 5px; -ms-border-radius-bottomleft: 5px; -o-border-radius-bottomright: 5px; -o-border-radius-bottomleft: 5px; -webkit-border-radius-bottomright: 5px; -webkit-border-radius-bottomleft: 5px; color: #999999; display: none; overflow: hidden ! important; position: relative !important; white-space: nowrap !important; width: 100%; height: auto;} div#lXvzBKZnpCNZG, div#RMhiQhBmFFlpI { text-align: left !important;} div#rvorcaHYZEjLTE, div#RMhiQhBmFFlpI div.NhB, div#rvorcaHYZEjLTE { overflow-x:hidden !important; overflow-y:auto !important; position: absolute; top: 0px !important; width: 100% ! important; white-space:nowrap;} div#rvorcaHYZEjLTE, div#RMhiQhBmFFlpI .AhzdDonyuvT { left: 0 !important;} div#TWeqGxerFXWHqi div#MrjSUwKsBYNypuf { overflow:visible !important; cursor: pointer} img#NZIcLWZCWWxiw, img#lJFRNp, img#bMboTeTSjoAEeTn { box-shadow : none !important; display : inline !important;} div#TWeqGxerFXWHqi span { white-space: -moz-pre-wrap !important; white-space: -pre-wrap !important; white-space: -o-pre-wrap !important; white-space: pre-wrap !important; word-wrap: break-word !important; white-space: normal !important;} img#hVDtBur { box-shadow : none ! important; display : inline !important;} img#QGqhMSq { box-shadow : none !important; display : inline !important;} img#iPxlOHpdACoapw { box-shadow : none !important; display : inline !important;} svg { display : inline !important;}</style></head><body id="main_body"> <!--?xml version="1.0" encoding="UTF-8"?--><svg width="115px" height="113px" viewBox="0 0 115 113" version="1.1" xmlns="http://www.w3.org/2000/svg" xmlns:xlink="http://www.w3.org/1999/xlink" style="width: 48px; height: 48px;">
<title>logo_folded_new</title> <g id="logo_folded_new" stroke="none" stroke-width="1" fill="none" fill-rule="evenodd"> <g id="Shape">
<path d="M0,0 L115,0 L115,56 C115,86.927946 89.927946,112 59,112 L56,112 C25.072054,112 3.78758101e-15,86.927946 0,56 L0,0 L0,0 Z" id="Fill" fill="#FFFFFF"></path> <path d="M115,0 L115,56 C115,86.927946 89.927946,112 59,112 L56,112 C25.072054,112 0,86.927946 0,56 L0,0 L115,0 Z M113,2 L2,2 L2,56 C2,85.5251427 25.6955087,109.515903 55.1070113,109.992766 L56,110 L59,110 C88.5251427,110 112.515903,86.3044913 112.992766,56.8929887 L113,56 L113,2 Z" id="Outline" fill="#979797" fill-rule="nonzero">
</path> <polygon id="Red-Stroke" fill="#E60000" fill-rule="nonzero" points="115 0 115 5 0 5 0

0"></polygon> </g> <g id="shield" transform="translate(16.000000, 15.000000)" fill-rule="nonzero"> <path d="M39.5820904,3.37158192 C17.6925989,17.0642373 4.22033898,5.07847458 4.22033898,11.9294915 C4.22033898,58.3954237 34.5458192,74.029435 40.3276836,76.5850847 C40.9256833,76.8460732 41.6053902,76.8460732 42.2033898,76.5850847 C47.980565,74.029435 78.3107345,58.3954237 78.3107345,11.9294915 C78.3107345,5.05971751 64.8384746,17.0876836 42.9489831,3.37158192 C41.9191126,2.72743695 40.6119609,2.72743695 39.5820904,3.37158192 Z" id="Shape" fill="#E60000"></path> <path d="M41.2655367,2.88373817 C40.6715692,2.87964037 40.0883205,3.0421052 39.5820904,3.35282486 C17.6925989,17.0642373 4.22033898,5.07847458 4.22033898,11.9294915 C4.22033898,58.3954237 34.5458192,74.029435 40.3276836,76.5850847 C40.6230637,76.716215 40.9423633,76.7848644 41.2655367,76.7867232 L41.2655367,2.88373817 Z" id="Shape" fill="#B20000"></path> <path d="M39.5820904,4.30474576 C40.6126014,3.66283681 41.918472,3.66283681 42.9489831,4.30474576 C64.5711864,17.819209 77.9731073,6.28830508 78.3107345,12.6188136 C78.3107345,12.3890395 78.3107345,12.149887 78.3107345,11.9248023 C78.3107345,5.05502825 64.8384746,17.0829944 42.9489831,3.36689266 C41.918472,2.7249837 40.6126014,2.7249837 39.5820904,3.36689266 C17.6925989,17.0642373 4.22033898,5.07847458 4.22033898,11.9294915 C4.22033898,12.1639548 4.22033898,12.3984181 4.22033898,12.6235028 C4.5579661,6.31175141 17.9645763,17.819209 39.5820904,4.30474576 Z" id="Shape" fill="#FFFFFF" opacity="0.2"></path> <path d="M42.2033898,75.6472316 C41.6053902,75.9082201 40.9256833,75.9082201 40.3276836,75.6472316 C34.5786441,73.1009605 4.53920904,57.6123164 4.22033898,11.7231638 C4.22033898,11.7981921 4.22033898,11.8732203 4.22033898,11.9482486 C4.22033898,58.4141808 34.5458192,74.0481921 40.3276836,76.6038418 C40.9256833,76.8648303 41.6053902,76.8648303 42.2033898,76.6038418 C47.980565,74.0481921 78.3107345,58.4141808 78.3107345,11.9482486 C78.3107345,11.8685311 78.3107345,11.7935028 78.3107345,11.7231638 C77.9965537,57.6123164 47.9571186,73.1009605 42.2033898,75.6472316 Z" id="Shape" fill="#1D1D1B" opacity="0.2"></path> </g> </g></svg> <!--?xml version="1.0" encoding="UTF-8"?--><svg width="111px" height="111px" viewBox="0 0 111 111" version="1.1" xmlns="http://www.w3.org/2000/svg" xmlns:xlink="http://www.w3.org/1999/xlink" style="width: 32px; height: 32px;"><title>logo_unfolded_new</title> <g id="logo_unfolded_new" stroke="none" stroke-width="1" fill="none" fill-rule="evenodd"> <g id="shield" transform="translate(5.000000, 6.000000)" fill-rule="nonzero"> <path d="M48.1661582,4.10276836 C21.529548,20.7649153 5.13559322,6.17983051 5.13559322,14.5166102 C5.13559322,71.0594915 42.0376836,90.0840113 49.0734463,93.1938983 C49.8011327,93.5114867 50.6282459,93.5114867 51.3559322,93.1938983 C58.3859887,90.0840113 95.2937853,71.0594915 95.2937853,14.5166102 C95.2937853,6.15700565 78.8998305,20.7934463 52.2632203,4.10276836 C51.0100045,3.31892931 49.4193741,3.31892931 48.1661582,4.10276836 Z" id="Shape"

fill="#E60000"></path>
<path d="M50.2146893,3.50912717
C49.4919095,3.5041407 48.7821731,3.70183886 48.1661582,4.0799435
C21.529548,20.7649153 5.13559322,6.17983051 5.13559322,14.5166102
C5.13559322,71.0594915 42.0376836,90.0840113 49.0734463,93.1938983
C49.4328847,93.3534664 49.82143,93.4370037 50.2146893,93.4392655
L50.2146893,3.50912717 Z" id="Shape" fill="#B20000"></path>
<path d="M48.1661582,5.23830508 C49.4201536,4.45718696
51.009225,4.45718696 52.2632203,5.23830508 C78.5745763,21.6836158
94.8829379,7.6520339 95.2937853,15.3554237 C95.2937853,15.0758192
95.2937853,14.7848023 95.2937853,14.510904 C95.2937853,6.15129944
78.8998305,20.7877401 52.2632203,4.09706215 C51.009225,3.31594402
49.4201536,3.31594402 48.1661582,4.09706215 C21.529548,20.7649153
5.13559322,6.17983051 5.13559322,14.5166102 C5.13559322,14.8019209
5.13559322,15.0872316 5.13559322,15.3611299 C5.54644068,7.68056497
21.8605085,21.6836158 48.1661582,5.23830508 Z" id="Shape" fill="#FFFFFF"
opacity="0.2"></path>
<path d="M51.3559322,92.0526554
C50.6282459,92.3702437 49.8011327,92.3702437 49.0734463,92.0526554
C42.0776271,88.9541808 5.52361582,70.1065537 5.13559322,14.2655367
C5.13559322,14.3568362 5.13559322,14.4481356 5.13559322,14.539435
C5.13559322,71.0823164 42.0376836,90.1068362 49.0734463,93.2167232
C49.8011327,93.5343115 50.6282459,93.5343115 51.3559322,93.2167232
C58.3859887,90.1068362 95.2937853,71.0823164 95.2937853,14.539435
C95.2937853,14.4424294 95.2937853,14.3511299 95.2937853,14.2655367
C94.9114689,70.1065537 58.3574576,88.9541808 51.3559322,92.0526554 Z"
id="Shape" fill="#1D1D1B" opacity="0.2"></path>
</g>
</g></svg> <span style="font-size: 20px !important; font-weight:
bold !important; padding-left:10px !important; letter-spacing: 0.14px; color:
#313131 !important;">Vodafone Secure Net <div style="width:
24px; height:24px; display:inline !important; float:right !important; padding-
top:3px !important">
<!--?xml version="1.0" encoding="UTF-8"
standalone="no"?-->
<svg width="24px" height="24px" viewBox="0 0 24 24"
version="1.1" xmlns="http://www.w3.org/2000/svg"
xmlns:xlink="http://www.w3.org/1999/xlink">
<!-- Generator: Sketch 41.2
(35397) - http://www.bohemiancoding.com/sketch -->
<title>ic_close_24</title>
<desc>Created with Sketch.</desc>
<defs></defs>
<g id="Page-1" stroke="none" stroke-width="1" fill="none"
fill-rule="evenodd">
<g id="web_companion" transform="translate(-
316.000000, -93.000000)">
<g id="Group"
transform="translate(10.000000, 81.000000)">
<g id="close-
r:10" transform="translate(306.000000, 12.000000)">
<g id="ICON-/-CLOSE">
<rect id="Rectangle-path"
x="0" y="0" width="24" height="24"></rect>
<path d="M3.14644661,3.85355339 L20.1464466,20.8535534
C20.3417088,21.0488155 20.6582912,21.0488155 20.8535534,20.8535534
C21.0488155,20.6582912 21.0488155,20.3417088 20.8535534,20.1464466
L3.85355339,3.14644661 C3.65829124,2.95118446 3.34170876,2.95118446
3.14644661,3.14644661 C2.95118446,3.34170876 2.95118446,3.65829124
3.14644661,3.85355339 Z" id="c33595e8-181e-4076-a9f0-227b8fdd48ef"
fill="#757575"></path>
<path
d="M3.85355339,20.8535534 L20.8535534,3.85355339
C21.0488155,3.65829124 21.0488155,3.34170876 20.8535534,3.14644661
C20.6582912,2.95118446 20.3417088,2.95118446 20.1464466,3.14644661
L3.14644661,20.1464466 C2.95118446,20.3417088 2.95118446,20.6582912
3.14644661,20.8535534 C3.34170876,21.0488155 3.65829124,21.0488155

3.85355339,20.8535534 Z" id="56502c87-b986-44ba-a730-3fc53d646431" fill="#757575"></path> </g> </g> </g> </g> </g></svg> <div id="qEHOwWPmZgX" style="float:left ! important; display:block !important;background: none repeat scroll 0px 0px #EBEBEB ! important; cursor: auto; height: 1px !important; margin-top: 8px ! important; width: 100% ! important; margin-left: 0px !important;"> Your security level is Strong<table id="zoTLufHqiEZbJE" cellspacing="0" style="width:100% !important" width="100%"><tbody><tr><td colspan="5" style="padding-bottom: 10px !important;"></td></tr><tr style="display:table-row;"><td width="5%" id="VMWMCXAwZNSod" style="display: table-cell; border-top-left-radius: 2px; border-bottom-left-radius: 2px; background-color: rgb(168, 180, 0);"> </td><td width="40%" id="veJvJsrAOeH" style="display: table-cell; background-color: rgb(168, 180, 0);"> </td><td width="45%" id="cMBGJJdovv" style="display: table-cell; border-top-right-radius: 2px; border-bottom-right-radius: 2px; background-color: rgb(168, 180, 0);"> </td><td width="5%" id="kcoVwM" style="display:table-cell;"> </td></tr></tbody></table> <div id="NzRIwUIw" style="float:left !important; display:block !important;background: none repeat scroll 0px 0px #EBEBEB ! important; cursor: auto; height: 1px !important; margin-top: 0px ! important; width: 100% ! important; margin-left: 0px ! important;"> Vodafone Secure Net keeps you safe and secure online.

To change your security settings or show/hide the Secure Net icon when browsing click on the button below <!--?xml version="1.0" encoding="UTF-8" standalone="no"?--><svg width="32px" height="32px" viewBox="0 0 32 32" version="1.1" xmlns="http://www.w3.org/2000/svg" xmlns:xlink="http://www.w3.org/1999/xlink" style="width: 32px; height: 32px;">
<!-- Generator: Sketch 41.2 (35397) - http://www.bohemiancoding.com/sketch --> <title>ic_settings_32</title> <desc>Created with Sketch.</desc> <defs></defs> <g id="Page-1" stroke="none" stroke-width="1" fill="none" fill-rule="evenodd"> <g id="web_companion" transform="translate(-20.000000, -287.000000)"> <g id="Group" transform="translate(10.000000, 271.000000)"> <g id="l:10" transform="translate(10.000000, 16.000000)">
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L26.156838,17.5969561 C26.3135826,16.608978 26.3229272,15.6031727
26.1845586,14.6124367 L28.9955465,13.018232 C29.317851,12.8354424
29.4292652,12.4249103 29.2435891,12.10426 L26.1185891,6.70759332
C25.9352812,6.3910328 25.5311287,6.28130771 25.2128999,6.46170387
L22.4241487,8.04257901 C21.6284367,7.40948084 20.7436101,6.89728752
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19.4998565,2.66666667 19.1316667,2.66666667 L12.8466667,2.66666667
C12.4784768,2.66666667 12.18,2.9651435 12.18,3.33333333
L12.18,6.50897613 C11.248259,6.87422091 10.3745571,7.37305083
9.58638216,7.98977895 L6.85114998,6.4033152 C6.53485808,6.21986253
6.12982362,6.32540673 5.94328365,6.63988772 L2.75995032,12.0065544
C2.57070405,12.3255978 2.67828047,12.7377588 2.99930915,12.9236175
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C6.06445055,25.6801705 6.46777068,25.790116 6.78590426,25.6106391
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12.4851435,29.3333333 12.8533333,29.3333333 L19.1383333,29.3333333
C19.5065232,29.3333333 19.805,29.0348565 19.805,28.6666667
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22.6314258,24.3033253 L25.0922838,25.7300764 Z M13.52,28 L13.52,25.035
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C9.8877114,22.5313579 9.5833438,22.501567 9.33909574,22.6393609
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C6.93309905,16.583364 6.93309905,15.4299694 7.15407994,14.3089336
C7.20917764,14.029423 7.08057485,13.745789 6.83402418,13.6030491
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C9.5626087,9.51736744 9.87124069,9.48878871 10.0863546,9.30379432
C10.9598685,8.55258705 11.9696568,7.97631766 13.0607436,7.60636006
C13.3313023,7.51462099 13.5133333,7.26068885 13.5133333,6.975
L13.5133333,4 L18.465,4 L18.465,6.98666667 C18.465,7.27136307
18.6457885,7.52464335 18.915035,7.61715472 C20.0172453,7.99586705
21.0354078,8.58505217 21.9129661,9.3519823 C22.1262459,9.53837527
22.4340217,9.56964762 22.6804335,9.42996279 L25.2957669,7.94739396
L27.7526578,12.1902808 L25.1227868,13.681768 C24.8748619,13.8223745
24.7437476,14.1050396 24.7965322,14.3851303 C25.009532,15.5153702
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24.8336474,18.3708621 25.0821789,18.5150156 L27.6870302,20.0258838
L25.1894989,24.2452178 L22.9093829,22.923257 C22.6665204,22.7824507
22.3614728,22.8088711 22.1464359,22.9893365 C21.2636989,23.7301557
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M21.3219224,15.6533157 C21.1477839,12.9810182 19.0189818,10.8522161
16.3466843,10.6780776 C14.1309295,10.5336895 12.0575363,11.7772317
11.141521,13.7999361 C10.2255057,15.8226405 10.6585424,18.2012611
12.2286406,19.7713594 C13.7987389,21.3414576 16.1773595,21.7744943
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21.3219224,15.6533157 Z M17.6500171,19.6438901 C16.1329888,20.3309015
14.3490234,20.006124 13.1714497,18.8285503 C11.993876,17.6509766

11.6690985,15.8670112 12.3561099,14.3499829 C13.0431214,12.8329546 14.5981663,11.9002979 16.2599824,12.008589 C18.2642055,12.1391929 19.8608071,13.7357945 19.991411,15.7400176 C20.0997021,17.4018337 19.1670454,18.9568786 17.6500171,19.6438901 Z" id="Combined-Shape" fill="#757575"></path> </g> </g> </g> </g> </g></svg> <span "="" id="BdBu" style="font-size: 16px !important; padding-left: 10px !important; color: #333333 !important; letter-spacing: 0.11px !important; width: 244px !important;">Manage Secure Net Settings <!--?xml version="1.0" encoding="UTF-8" standalone="no"?--><svg width="24px" height="24px" viewBox="0 0 24 24" version="1.1" xmlns="http://www.w3.org/2000/svg" xmlns:xlink="http://www.w3.org/1999/xlink" style="width: 24px; height: 24px;">
<!-- Generator: Sketch 41.2 (35397) - http://www.bohemiancoding.com/sketch --> <title>ic_chevron_24</title> <desc>Created with Sketch.</desc> <defs></defs> <g id="Symbols" stroke="none" stroke-width="1" fill="none" fill-rule="evenodd"> <g id="ICON-/-CHEVRON-RIGHT"> <g id="Group-2"> <rect id="Rectangle-path" transform="translate(12.000000, 12.000000) rotate(-90.000000) translate(-12.000000, -12.000000) " x="0" y="0" width="24" height="24"></rect> <polyline id="259e14f8-3d8b-4ae1-b945-69f9c598b490" stroke="#757575" stroke-linecap="round" stroke-linejoin="round" points="7.75 3.5 16.25 12 7.75 20.5"></polyline> </g> </g> </g></svg> <span "="" id="nwLzTVwYsA" style="font-size: 16px !important; padding-left: 10px !important; color: #333333 !important; letter-spacing: 0.11px !important; display: inline-block !important; width: 244px !important;">Ad-Control filter status is undefined
The link is undefined Blocked banners:
click here to view this information

 The home of Multi Crew Experience   <ul id="main_nav_list">
Home
Screenshots
Downloads
<a

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<a
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untry=ALL&border=%23ffffff%7C0px%2C1px+solid+%23993333%7C0px
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%2C2px+solid+%23EE8888&output=js"></script><div
class="sub_nav_container"> <div
class="content" id="content_container"> Please note that like any software
package released, some users may run into some issues that we could not
foresee. But our team will be more than happy to address them. All you need
is e-mail: <a title="Ask question, or report problem with this application"
href="mailto:support@multicrewxp.com">support@multicrewxp.com
For those not eager to read lengthy manuals, stay
tuned,
as we plan to release a few HOW TO videos.
<u>General Tips &
Tricks.</u>
You do not need to press the joystick button(or even
own
a joystick) to talk to the co-pilot. You only need that for ATC transmission,
and that is just for more realism. . The alternative is to use the <DEL>
(delete)
key of the keyboard for ATC transmission, and ATC only, not for checklist
or anything else.
We strongly recommend using the application with the
default
settings initially, before tweaking it.
You may also want to disable the "Call-outs and
monitoring"
feature, found in the "General" tab of the user interface,
until you are comfortable with this add-on. It will stop the co-pilot
constantly telling you off when you are struggling to keep that speed,
heading or altitude as set on the autopilot control panel. Disabling
this feature may also help slower systems fare better, as it is CPU
intensive.

<img src="resources/separator.gif" width="128"
height="2">

Q: I get this message when running MCE, "Could not load speech
file, "file_name.cfg""
A: You need to make sure the speech engine is set to US English, and
not UK English, or any other localized English variant. You do that
through the Windows Control Panel, and "Speech" utility.

 <img src="resources/separator.gif" width="128" height="2">

Q. Talking to ATC yields nothing.
A. To use the ATC feature, you need to press a joystick button, hold it down while transmitting, and release it when done with your message. If you don't have a joystick, the DELETE key of the keyboard can be used for that purpose.

<img src="resources/separator.gif" width="128" height="2">

Q. How to get the best out of the ATC feature?

A. Most issues with ATC are call sign related. Have you tried ATC training?
It is accessible from the start menu. You will have the opportunity to spell a lot of airline names so that they can be better recognized.

Example: Say your call sign is American 4325

You could say any of these:
American four three two five

American forty three twenty five
 American four three twenty five
 American forty three two five

Although you can call ATC bodies by their complete name, like Heathrow
Tower, charles de gaulle ground, you will be more successful, when transmitting,
if you just refer to them as Ground, Approach, Tower, Centre. And it is more of an issue when the name is not English.
Having said that, we are prepared to look at the ATC grammar, and would
consider a revision if needed.

We are also open to suggestions, on which voice commands to include.

Another suggestion, is to look at the "Command" tab of the UI, and set the speech pace to your liking.

If you tend to speak slowly, move slider towards slow.
If your speech pace is fast, try moving it towards fast.

<img src="resources/separator.gif" width="128" height="2">
Q. What happens if my system is fitted with more than one sound card.
A. In that case, you could use the "Assign Sound Device" tool provided.

Click Start->All Programs->Multi Crew Experience->Tools->Assign
sound device.
<img src="resources/tool_assign_sound.JPG" width="508" height="254">
Select the correct input and output to be used by MCE.

<img src="resources/separator.gif" width="128" height="2">

Q: I cannot select the "Microsoft Speech Recognizer 8.0 for Windows
(English - US)", because it's not there, on my system.
A: If running English distribution of Vista, make sure
you have installed Vista Service Pack 1. If it is till not there, google
"US English Language Pack for Vista", for instructions on
how to proceed.
If you are running a non-English distribution of Vista
or Windows 7, the assumption is that you are running the Ultimate or
Entreprise editions, that you have installed service pack 1. You also
need to install the US English Language pack.

<img src="resources/separator.gif" width="128" height="2" align="middle">

Q: I am running a non-Engligh version of the Flight Simulator (Spanish,
German, French etc...), and all ATC strings are now showing in English.
They used to display in my native language. Is this normal?
A: While we won't tell you by which magic we accomplish this feat,
yes it is done on purpose, so that you can practice ATC in the most
widespread, and official language. With English ATC phraseology, you
can fly anywhere in the world.
To revert back to normal, un-install MCE, and manually delete "fsInsider.dll"
from FS9\Modules\ folder, or FSX folder, depending on the simulator
you are using.

Links Contacts
FS++ Simulations
<!-- wfxbuild / 1.0 / layout2-1 / 2008-12-07 11:37:53 CET--><script type="text/javascript">

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analytics.com/ga.js' type='text/javascript'%3E%3C/script%3E"));
</script><script src="http://www.google-analytics.com/ga.js"
type="text/javascript"></script>
<script type="text/javascript">
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SF+Pro+Icons,v3">
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SiteCatalyst code Copyright 1997-2006 Omniture, Inc.
-->
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</script>
<script src="https://www.apple.com/metrics/scripts/s_code_h.js"></script>
<script>
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  /************* DO NOT ALTER ANYTHING BELOW THIS LINE ! **************/
  var s_code=s.t();if(s_code)document.write(s_code)</script>

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End SiteCatalyst code
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</label>
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Global Nav Open Menu

<a class="ac-gn-menuanchor ac-gn-menuanchor-close" href="#" id="ac-gn-menuanchor-close" role="button" onclick="var
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Global Nav Close Menu

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this.s_oc?this.s_oc(e):true">
Apple

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Apple

<li class="ac-gn-item ac-gn-item-menu ac-gn-mac">

```
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</a>
</li>
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</li>
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</a>
</li>
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this.s_oc?this.s_oc(e):true">
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</li>
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this.s_oc?this.s_oc(e):true">
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</a>
</li>
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</a>
```

```
</li>
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x=&quot;.tl(&quot;;s_objectID=&quot;https://beta.apple.com/sp/betaprogram/
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Program</a>
</div>
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x=&quot;.tl(&quot;;s_objectID=&quot;https://beta.apple.com/sp/betaprogram#lo
calnav-menustate_1&quot;;return this.s_oc?this.s_oc(e):true">
<span class="localnav-menucta-anchor-label">Open Menu</span>
</a>
<a class="localnav-menucta-anchor localnav-menucta-anchor-close" href="#"
id="localnav-menustate-close" role="button" onclick="var
x=&quot;.tl(&quot;;s_objectID=&quot;https://beta.apple.com/sp/betaprogram#_
2&quot;;return this.s_oc?this.s_oc(e):true">
<span class="localnav-menucta-anchor-label">Close Menu</span>
</a>
<div class="localnav-menu-tray">
<ul class="localnav-menu-items">
<li class="localnav-menu-item">
<a class="localnav-menu-link" href="/sp/betaprogram/faq" onclick="var
x=&quot;.tl(&quot;;s_objectID=&quot;https://beta.apple.com/sp/betaprogram/
faq_1&quot;;return this.s_oc?this.s_oc(e):true">FAQ</a>
</li>
<li class="localnav-menu-item">
<a class="localnav-menu-link"
href="https://beta.apple.com/sp/betaprogram/legal?lo=y" onclick="var
x=&quot;.tl(&quot;;s_objectID=&quot;https://beta.apple.com/sp/betaprogram/
legal?lo=y_1&quot;;return this.s_oc?this.s_oc(e):true">Sign In</a>
</li>
</ul>
</div>
<div class="localnav-actions localnav-actions-center">
<div aria-hidden="true" class="localnav-action localnav-action-menucta">
<label class="localnav-menucta" for="localnav-menustate">
<span class="localnav-menucta-chevron"></span>
</label>
</div>
```

```
</div>
</div>
</div>
</div>
</nav>
<label for="localnav-menustate" id="localnav-curtain"></label>

<div class="text-center content">
<div aria-label="Apple Beta Software Program" class="medium-pad-bottom
picture-welcome-hero item-center" title="Apple Beta Software Program"></div>
<h2 class="typography-headline-elevated">Apple Beta Software Program</h2>
<div class="row">
<div class="large-12 medium-10 small-11 column large-centered small-
centered">
<p class="typography-intro-elevated medium-pad-bottom">Help make the next
releases of iOS, iPadOS, macOS, tvOS, watchOS and HomePod software our best
yet. As a member of the Apple Beta Software Program, you can take part in
shaping Apple software by test-driving pre-release versions and letting us know
what you think.</p>
<p class="typography-intro">Learn more about the next releases.</p>
</div>
</div>
<ul class="links-inline small-pad-top small-pad-bottom">
<li>
<a class="icon-wrapper" href="https://www.apple.com/ios/ios-16-preview/"
onclick="var
x=&quot;.tl(&quot;;s_objectID=&quot;https://www.apple.com/ios/ios-16-
preview/_1&quot;;return this.s_oc?this.s_oc(e):true"><span class="icon-
copy">iOS 16</span><span class="more"></span></a></li>
<li>
<a class="icon-wrapper" href="https://www.apple.com/ipados/ipados-16-
preview/" onclick="var
x=&quot;.tl(&quot;;s_objectID=&quot;https://www.apple.com/ipados/ipados-16-
preview/_1&quot;;return this.s_oc?this.s_oc(e):true"><span class="icon-
copy">iPadOS 16</span><span class="more"></span></a></li>
<li>
<a class="icon-wrapper" href="https://www.apple.com/macos/macos-ventura-
preview/" onclick="var
x=&quot;.tl(&quot;;s_objectID=&quot;https://www.apple.com/macos/macos-
ventura-preview/_1&quot;;return this.s_oc?this.s_oc(e):true"><span class="icon-
copy">macOS Ventura</span><span class="more"></span></a></li>
<li>
<a class="icon-wrapper" href="https://www.apple.com/apple-tv-4k/"
onclick="var
x=&quot;.tl(&quot;;s_objectID=&quot;https://www.apple.com/apple-tv-4k/
_1&quot;;return this.s_oc?this.s_oc(e):true"><span class="icon-
copy">tvOS 16</span><span class="more"></span></a></li>
<li>
<a class="icon-wrapper" href="https://www.apple.com/watchos/watchos-
preview/" onclick="var
x=&quot;.tl(&quot;;s_objectID=&quot;https://www.apple.com/watchos/watchos-
preview/_1&quot;;return this.s_oc?this.s_oc(e):true"><span class="icon-
copy">watchOS 9</span><span class="more"></span></a></li>
<li>
```

HomePod Software 16

Sign up

Already a member?
Sign in

<hr class="large-pad-top medium-pad-bottom">

<h4 class="typography-headline-reduced">How do I participate?</h4>

As a member of the Apple Beta Software Program, you’ll be able to enroll your devices to access the public betas and try out the latest features. You can provide feedback directly to Apple using the Feedback Assistant app.

<hr class="large-pad-top large-pad-bottom">

<h2 class="typography-callout-reduced">Frequently Asked Questions</h2>

Have additional questions about

the Apple Beta Software Program?

Read FAQs

<h2 class="typography-callout-reduced">Apple Developer Program</h2>

Looking to build the next generation of amazing apps and test them on the developer beta?

Learn about the Apple Developer Program

<footer aria-labelledby="footer-label" class="footer" id="footer" role="contentinfo">

<h2 class="footer-label" id="footer-label">Footer</h2>
<section class="footer-mini" typeof="Organization" vocab="http://schema.org/">

Copyright © 2022 Apple Inc. All rights reserved.

Terms

Privacy Policy

Unenroll

<select class="language">
<option selected="selected" value="en">English</option>
<option value="fr">Français</option>
<option value="de">Deutsch</option>
<option value="ja">□□□</option>
<option value="zh">□□□□</option>
<option value="ru">Русский</option>
<option value="ko">□□□</option>

```
</select>
</div>
</div>
</div>
</section>
</div>
</footer>
<script>
  $(function() {
    $('#lang-footer-item').on('change', function(p_evt) {
      p_evt.preventDefault();
      var $tar = $(p_evt.target);

      lang_reg = /\/[a-rt-z][a-oq-z]\//;
      sp_reg = /\/sp\//;
      query_reg = /(locale=[a-z]{2}[\&]{0,1})/;
      var new_path;
      if( -1 !== window.location.pathname.search(lang_reg) ) {
        new_path = window.location.pathname.replace(lang_reg, '/' + $tar.val() +
'/');
      }
      else if ( -1 !== window.location.pathname.search(sp_reg) )
        new_path = window.location.pathname.replace(sp_reg, '/sp/' + $tar.val() +
'/');
      else {
        new_path = '/' + $tar.val() + window.location.pathname;
      }
      var final_url = window.location.href.replace( window.location.pathname,
new_path ).replace(query_reg, '');
      // console.log('selected language ' + final_url);
      window.location.assign(final_url);
    });
  });
</script>


<script src="//www.apple.com/ac/globalnav/6/en_US/scripts/ac-
globalnav.built.js"></script><div id="ac-gn-viewport-emitter"> </div>
<script src="https://appleseedcdn.apple.com/sp/assets/open/tenten/src/tenten/
js/foot.built-
74fb44b442c6ffb1aba72cf959092376dce79c3b15463262469db426f635bb64.js"
charset="utf-8"></script>


</body></html><html><head>
<title>:: ZeroSoft ::</title>
<link rel="stylesheet" type="text/css" href="scripts/common.css">
</head>

<body bgcolor="#FFFFFF" topmargin="0" leftmargin="0">
<table border="0" width="100%" cellspacing="0">
        <tbody><tr>
        <td class="tableh" align="center"></td>
   </tr>
```

```
        <tr>
        <td align="center" valign="center" class="maintitle"><img border="0"
src="/imgs/zero.gif"> ZeroSoft</td>
        </tr>
</tbody></table><!--#include virtual="panels/top.htm"-->

<div align="center">
        <table border="0">
    <tbody><tr>
      <td valign="top" align="left">
        <table border="0" width="100px" right-margin="10px" left-margin="10px"
cellspacing="0">
        <tbody><tr>
                <td class="sectionh"><a class="sectionh"
href="index.php">Home</a></td>
        </tr>
        <tr>
                <td> </td>
        </tr>
        <tr>
          <td class="sectionh">Articles</td>
        </tr>
        <tr>
                <td><a class="menuentry" href="ips.php">IPS Format</a></td>
        </tr>
        <tr>
                        <td> </td>
        </tr>
        <tr>
        <td class="sectionh">Projects</td>
        </tr>
        <tr>
                <td><a class="menuentry"
href="emustation.php">EMUStation</a></td>
        </tr>
        <tr>
                <td><a class="menuentry" href="jips.php">JIPS</a></td>
        </tr>
        <tr>
                <td><a class="menuentry" href="ipswin.php">IPSWin</a></td>
        </tr>
        <tr>
                        <td><a class="menuentry"
href="smartdats.php">SmartDATs</a></td>
        </tr>
        <tr>
                <td><a class="menuentry" href="stalker.php">Stalker</a></td>
        </tr>
        <tr>
                        <td> </td>
        </tr>
        <!--<tr>
          <td class="sectionh">EMUScene</td>
        </tr>
```

```
        <tr>
                <td><a class="menuentry" href="ipswin.htm">My
Releases</a></td>
        </tr>-->
</tbody></table>       <!--#include virtual="panels/menu.htm">-->
     </td>
     <td valign="top">
                <!-- Main Body Table -->
                <table border="0" cellpadding="0">
        <tbody><tr>
          <td align="center" class="title">
            <p class="title">IPS File Format</p>
          </td>
        </tr>
        <tr>
                                <td>
                                        <p><b>IPS specifications.</b><br>
                                        IPS format was created a lot of time ago and so
the specs for many people are too restrictive for the modern needs.
                                        Well, let see these specs.</p>
                                        <ul>
                                                <li>IPS files can patch every file not
larger than 2^24-1 bits (2047 Mb)</li>
                                          <li>Every patch should not be larger than
2^16-1 bits (7.99 Mb)</li>
                                          <li>An IPS file can hold as many patches he
can, assumed that the specified offset and the size of every single patch doesn't
overflow
                                              the specified bounds.</li>
                                        </ul>
                                        <p>As you should realize it isn't so restrictive...
8 )</p>
                                        <p><b>IPS file format</b><br>
                                        The IPS file structure is made just like that:</p>

                                        <table border="0" width="100%"
bgcolor="#000080">
                                        <tbody><tr>
                                                <td width="32%"
bgcolor="#800080"><font size="2" face="Arial"
color="#FFFFFF"><b>Section</b></font></td>
                                          <td width="33%" bgcolor="#800080"><font
size="2" face="Arial" color="#FFFFFF"><b>Size (Bytes)</b></font></td>
                                          <td width="85%" bgcolor="#800080"><font
size="2" face="Arial" color="#FFFFFF"><b>Description</b></font></td>
                                        </tr>
                                        <tr>
                                          <td width="32%" bgcolor="#FFFFFF"><font
size="2" face="Courier New" color="#800080">Header</font></td>
                                          <td width="33%" bgcolor="#FFFFFF"><font
size="2" face="Arial">5</font></td>
                                          <td width="85%" bgcolor="#FFFFFF"><font
size="2" face="Arial">The header show ever the same string: </font><font
```

size="2" face="Courier New" color="#800080"> PATCH note that the string is not NULL terminated.</td>
</tr>
<tr>
<td width="32%" bgcolor="#FFFFFF">Record</td>
<td width="33%" bgcolor="#FFFFFF">3+2+Variable</td>
<td width="85%" bgcolor="#FFFFFF">It's the record of a single patch, see below</td>
</tr>
<tr>
<td width="32%" bgcolor="#FFFFFF">....</td>
<td width="33%" bgcolor="#FFFFFF"> </td>
<td width="85%" bgcolor="#FFFFFF">The numbers of record may vary</td>
</tr>
<tr>
<td width="32%" bgcolor="#FFFFFF">End Of file marker</td>
<td width="33%" bgcolor="#FFFFFF">3</td>
<td width="85%" bgcolor="#FFFFFF">A string (not NULL terminated) saying EOF</td>
</tr>
</tbody></table>
IPS Record structure:
<table border="0" width="100%" bgcolor="#000080">
<tbody><tr>
<td width="22%" bgcolor="#800080">Section</td>
<td width="25%" bgcolor="#800080">Size (Bytes)</td>
<td width="53%" bgcolor="#800080">Description</td>
</tr>
<tr>
<td width="22%" bgcolor="#FFFFFF">Offset</td>
<td width="25%" bgcolor="#FFFFFF">3</td>
<td width="53%" bgcolor="#FFFFFF">The offset where the patch will be placed in the file to patch</td>
</tr>
<tr>
<td width="22%" bgcolor="#FFFFFF">Size</td>

<td width="25%" bgcolor="#FFFFFF">2</td>
<td width="53%" bgcolor="#FFFFFF">The size of the data to put from the specified offset in the patching file</td>
</tr>
<tr>
<td width="22%" bgcolor="#FFFFFF">Data</td>
<td width="25%" bgcolor="#FFFFFF">Size</td>
<td width="53%" bgcolor="#FFFFFF">Contains a number of Size bytes of data to be copied in the file to patch </td>
</tr>
</tbody></table>
And that's the info you can find around. Now the technical stuff and RLE infos.
IPS RLE encoding
The next big step in the comprehension of the IPS format is that some patches can be RLE encoded to save space. The
encoding is very simple but can easily be overlooked if someone is not aware of that. If when you read the size value
of a record this field contains 0 you have a RLE encoded patch. You should read again a 16 bit value to obtain the size
of the RLE patch and then you should read a single byte. This byte must be repeated as many times as the value of the
second 16 bit read. An IPS RLE Record should look like that:
IPS RLE Record structure:
<table border="0" width="100%" bgcolor="#000080">
<tbody><tr>
<td width="28%" bgcolor="#800080">Section</td>
<td width="26%" bgcolor="#800080">Size(Bytes)</td>
<td width="118%" bgcolor="#800080">Description</td>
</tr>
<tr>
<td width="28%" bgcolor="#FFFFFF"> Offset </td>
<td width="26%" bgcolor="#FFFFFF">3</td>
<td width="118%" bgcolor="#FFFFFF">Any Value</td>
</tr>
<tr>
<td width="28%" bgcolor="#FFFFFF">Size</td>

<td width="26%" bgcolor="#FFFFFF">2</td>
<td width="118%" bgcolor="#FFFFFF">0</td>
</tr>
<tr>
<td width="28%" bgcolor="#FFFFFF">RLE_Size</td>
<td width="26%" bgcolor="#FFFFFF">2</td>
<td width="118%" bgcolor="#FFFFFF">Any nonzero value</td>
</tr>
<tr>
<td width="28%" bgcolor="#FFFFFF">Value</td>
<td width="26%" bgcolor="#FFFFFF">1</td>
<td width="118%" bgcolor="#FFFFFF">This is the value to write RLE_Size times starting from Offset</td>
</tr>
</tbody></table>

Encoding Of Offset and Size
For peoples using low level languages a little bytes-swapping is needed to make read right the values of Offset and Size.
These values are written linearly, just like Pascal and Basic does when handling numerical variables. The problem is that
low level languages like ASM and C/C++ use the same endianess format of the machine, so every couple of two bytes are
swapped. A 16 bit value is written like this in the IPS: 0x6712, a 24 bit value in this way: 0x671234. If read with a low
level language they'll throw up: 0x1267 and 0x341267 respectively. Here two C macros that does
the conversion after you read them. bp should be a char array:
#define BYTE3_TO_UINT(bp) \
     (((unsigned int)(bp)[0] << 16) & 0x00FF0000) | \
     (((unsigned int)(bp)[1] << 8) & 0x0000FF00) | \
     ((unsigned int)(bp)[2] & 0x000000FF)

#define BYTE2_TO_UINT(bp) \
    (((unsigned int)(bp)[0] << 8) & 0xFF00) | \
    ((unsigned int) (bp)[1] & 0x00FF)
16 bit compiler users may find useful to substitute unsigned int

 to unsigned
long in
the BYTE3_TO_UINT
macro...
Real simple once someone has hacked the format for you, isn't it?
Z.e.r.o
</td>
</tr>
</tbody></table>
</td>
</tr>
</tbody></table>

 Copyright (C) 1998-2002 Z.e.r.o and ZeroSoft <!--#include virtual="panels/bottom.htm"-->

</body></html><html xml:lang="en-us" xmlns="http://www.w3.org/1999/xhtml" class="js"><head>
<title>How to use IPS files - MSX Wiki</title>
<link rel="shortcut icon" href="/sites/all/themes/mrc2k11/favicon.ico" type="image/x-icon">
<meta name="author" content="MSX Resource Center">
<meta name="copyright" content="Copyright (c) 1994-2022 MSX Resource Center">

<meta http-equiv="content-language" content="en">
<meta http-equiv="Content-Type" content="text/html; charset=UTF-8">
<link rel="alternate home" type="application/rss+xml" href="/feed/news" title="MSX Resource Center RSS feed">
<script src="https://pagead2.googlesyndication.com/pagead/managed/js/adsense/m202207210101/reactive_library_fy2021.js"></script><script src="https://partner.googleadservices.com/gampad/cookie.js?domain=www.msx.org&callback=_gfp_s_&client=ca-pub-6635241113212162"></script><script src="https://pagead2.googlesyndication.com/pagead/managed/js/adsense/m202207210101/show_ads_impl_with_ama_fy2019.js?client=ca-pub-6635241113212162&plah=www.msx.org" id="google_shimpl"></script><script type="text/javascript" async="" src="//cdn.viglink.com/api/vglnk.js"></script><script type="text/javascript" async="" src="https://ssl.google-analytics.com/ga.js"></script><script type="text/javascript" src="//ajax.googleapis.com/ajax/libs/jquery/1.3.2/jquery.min.js"></script>

<meta name="description" content="IPS or "International Patching System", is a file format, originally meant to patch ROM images, but can also be used with Disk image files. Patching image files can be

done to fix bugs, but can also be used for other things such as cheats, translations or game enhancements. The specification of the IPS format is available.">
<meta name="generator" content="MediaWiki 1.16.1">
<link rel="shortcut icon" href="/favicon.ico">
<link rel="search" type="application/opensearchdescription+xml" href="/wiki/opensearch_desc.php" title="MSX Wiki (en)">
<link rel="alternate" type="application/atom+xml" title="MSX Wiki Atom feed" href="/wiki/index.php?title=Special:RecentChanges&feed=atom">
<link rel="stylesheet" href="/wiki/skins/common/shared.css?270" media="screen">
<link rel="stylesheet" href="/wiki/skins/common/commonPrint.css?270" media="print">
<link rel="stylesheet" href="https://www.msx.org/sites/all/themes/mrc2k11/css/combined.min.css?v=r1-64-6" media="screen">
<link rel="stylesheet" href="https://www.msx.org/sites/all/themes/mrc2k11/css/wiki.css?r1-6-14" media="screen">
<link rel="stylesheet" href="/wiki/skins/mrc/css/print.css?270" media="print">
<link rel="stylesheet" href="/wiki/index.php?title=MediaWiki:Common.css&usemsgcache=yes&ctype=text%2Fcss&smaxage=18000&action=raw&maxage=18000">
<link rel="stylesheet" href="/wiki/index.php?title=MediaWiki:Print.css&usemsgcache=yes&ctype=text%2Fcss&smaxage=18000&action=raw&maxage=18000" media="print">
<link rel="stylesheet" href="/wiki/index.php?title=MediaWiki:Mrc.css&usemsgcache=yes&ctype=text%2Fcss&smaxage=18000&action=raw&maxage=18000">
<link rel="stylesheet" href="/wiki/index.php?title=-&action=raw&maxage=18000&gen=css"> <script type="text/javascript">
   var _q = _q || [];

   var Drupal = {settings: { basePath: "/" }, behaviors: {} };

   Drupal.settings.smileys = { "enable_dialog": 0, "draggable": 0, "resizable": 0, "dialog_width": 200, "dialog_height": 0 };
   Drupal.settings.BUE = { "imceURL" : "", "templates": {} };
   Drupal.locale = {};
  </script>

<!--[if lt IE 7]><script type="text/javascript" src="/wiki/skins/common/IEFixes.js?270"></script>
<meta http-equiv="imagetoolbar" content="no" /><![endif]-->

<script>
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stylepath="/wiki/skins",
wgUrlProtocols="http\\:\\/\\/|https\\:\\/\\/|ftp\\:\\/\\/|irc\\:\\/\\/|gopher\\:\\/\\/|telnet\\:\\/\\/|nntp\\:\\/\\/|worldwind\\:\\/\\/|mailto\\:|news\\:|svn\\:\\/\\/",
wgArticlePath="/wiki/$1",

wgScriptPath="/wiki",
wgScriptExtension=".php",
wgScript="/wiki/index.php",
wgVariantArticlePath=false,
wgActionPaths={},
wgServer="https://www.msx.org",
wgCanonicalNamespace="",
wgCanonicalSpecialPageName=false,
wgNamespaceNumber=0,
wgPageName="How_to_use_IPS_files",
wgTitle="How to use IPS files",
wgAction="view",
wgArticleId=7159,
wgIsArticle=true,
wgUserName=null,
wgUserGroups=null,
wgUserLanguage="en",
wgContentLanguage="en",
wgBreakFrames=false,
wgCurRevisionId=84751,
wgVersion="1.16.1",
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wgCategories=["FAQ", "SceneTools"],
wgRestrictionEdit=[],
wgRestrictionMove=[];
</script>
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wikibits js --></script>

  <!-- Head Scripts -->
  <script src="/wiki/skins/common/ajax.js?270"></script>
<script
src="https://www.msx.org/sites/all/themes/mrc2k11/javascript/combined.min.js?
v=r1-64-6&270"></script>
      <script type="text/javascript" src="/wiki/index.php?title=-
&action=raw&gen=js&useskin=mrc"><!-- site js --></script>

  <meta http-equiv="origin-trial"
content="AzoawhTRDevLR66Y6MROu167EDncFPBvcKOaQispTo9ouEt5LvcBjnRFq
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How to use IPS files

This page was last modified 02:01, 26 April 2021 by Gdx. Based on work by Mcolom and Mars2000you and others.

IPS or "International Patching System", is a file format, originally meant to patch ROM images, but can also be used with Disk image files. Patching image files can be done to fix bugs, but can also be used for other things such as cheats, translations or game enhancements. The specification of the IPS format is available.
The advantage of IPS to distributing patched images, is that you do not modify the original, the IPS file is normally very small, and you are unlikely to have copyright issues.

A disadvantage to IPS, is that it will only apply if the checksum matches, so you need to have the correct original file. Especially for Disk images this may be problematic, as some games insist on writing to the disk and then the checksum will no longer match.

<h2> On the fly patching</h2>
The openMSX emulator supports on the fly patching. This way you do not need to keep a patched version of the image around.
For example, to patch a ROM file on the fly in openmsx you would use a command such as this:

<pre>openmsx -cart galious.rom -ips galiouspatch.ips
</pre>
For more information, see the openmsx user manual.
In addition, openMSX can also export patched disk images, using the built-in diskmanipulator command.
For more information, see the openmsx diskmanipulator documentation.

<h2> Patching tools</h2>
 Lunar IPS (LIPS) is an application for Windows. It allows us to apply or make patches.
 IPSEXE is another powerful application for Windows. It allows us to apply or make patches.
 Lipx to create and apply patches, platform-independent, written in Python 3.
 Neill Corlett's UIPS is the best option for those running some Un*x flavor. The source code is available.here, and the Mac OS-X binary is available here.
 IPS Patching Tool is an online patcher. The page is in Japanese but it allows us to apply easily patches on any OS.
 MultiPatch seems to be the only functional application for recent Macs and it can also create patches. (Supports BPS, IPS, UPS, PPF, XDelta, BSDiff and RUP (Ninja2) patching and BPS, IPS, XDelta and BSDiff patches creating)
 IPS4MSX allows

to apply our patches directly on MSX-DOS. Tested on MSX Turbo R, it does the job quickly even for megaroms.
 Floating IPS for Windows and Linux, meant as a replacement for Lunar IPS.
 Lazy IPS for Linux written in Python.
 JIPS IPS patcher written in Java.

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NewPP limit report
Preprocessor node count: 7/1000000
Post-expand include size: 0/2097152 bytes
Template argument size: 0/2097152 bytes
Expensive parser function count: 0/100
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<!-- Saved in parser cache with key mrc_2k11-wiki_:pcache:idhash:7159-0!1!0!!en!2!edit=0 and timestamp 20220417215959 -->

Retrieved from "https://www.msx.org/wiki/How_to_use_IPS_files"

<!-- main navigation -->

Navigation

<li class="list"> Main page
<li class="list"> Community portal
<li class="list"> Current events

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transform:rotate(270deg);transform:rotate(270deg);-webkit-transform-origin:left top;-moz-transform-origin:left top;-ms-transform-origin:left top;transform-origin:left top;transform-origin:left top;text-decoration:none;font-size:2em;font-style:italic;font-weight:700;text-align:center}#se{padding:24px 10px 10px}#se fieldset{margin:0;padding:14px 0;text-align:center;background-color:#ddd;border:1px solid #888;border-radius:8px}#se label{display:block;padding:7px 0;color:#a00;font-size:1.1em;font-weight:700;width:45%;float:left}#se .st{padding:0;width:30%;font-size:2em;border:1px solid #aaa;border-radius:4px;vertical-align:middle}#se .ss{font-size:1.2em;font-weight:400;color:#fff;margin:0;padding:0;width:20%;height:2em;background-color:#ab0909;border:1px solid #666;border-radius:4px;vertical-align:middle}#se .ss:hover{color:#fff;background-color:#900;border:1px solid #aaa}#bc{margin:5px}#toc li{padding:10px 0}.ebox,.ebox a,.dlnk a,#toc a{text-decoration:none;color:#222;font-style:italic}.ebox a{font-weight:700}#menu{padding:20px 0 0;text-align:center;clear:both;line-height:1.8}#copy{padding:5px 0;text-align:right;color:#aaa}#btt{display:none;text-align:center}.pa,.pn{padding:10px;clear:both}.extl,.pl{float:left}.pr{float:right}#to,#la,#ca{padding:0 10px;width:33%;float:left;box-sizing:border-box}#to dd,#la dd{margin-left:40px}#ca{line-height:1.8}#db{padding:20px 10px;text-align:center;color:#a00;font-weight:700}.hi{display:inline-block;padding:3px 10px;font-weight:700;background-color:#06c;color:#fff;text-decoration:none;border-radius:6px}.hi:hover{background-color:#07d}.bd{font-weight:700}#result{clear:both}.eb{margin:10px;padding:10px;font-style:italic;border:1px solid #888;border-radius:8px}.gadr,.gadc,.gadl,.gadt{position:relative;padding:15px 0;text-align:center;box-sizing:border-box;overflow:hidden}.gadr,.gadt{padding-left:20px;width:356px;height:310px;float:right}.gadl{padding-right:20px;width:356px;height:310px;float:left}.li{padding:10px 0;color:#a00;text-align:center}#cw{display:block;position:absolute;top:0;right:0;box-sizing:border-box;margin:3px;padding:5px;border:1px solid #888;border-radius:8px;background-color:#fff;text-align:center;opacity:.85;font-size:.8em}#cw .cb{display:inline-block;padding:2px 10px;margin:0;color:#fff;background-color:#ab0909;border: 1px solid #666;border-radius:4px;vertical-align:middle}.ratdiv{padding:10px}.rating {display:inline-block;padding:0 20px 10px 0;border:0;unicode-bidi:bidi-override;direction:rtl;text-align:left;user-select:none;font-size:2em;cursor:pointer;color:#ccc}.rating > label {display:inline-block;position:relative;top:0.1em;width:1.2em}.rating > *:hover,.rating > *:hover ~ label,.rating:not(:hover) > input:checked ~ label {color:#fa0;cursor:inherit}.rating > *:hover:before,.rating > *:hover ~ label:before,.rating:not(:hover) > input:checked ~ label:before {position: absolute;left:0;color:#fa0}.rating > input {position: relative;top:-0.5em;margin-left:-1.5em;z-index:2;opacity:0}@media screen and (max-width:640px) {body,.ct{margin:0}dd{margin:10px 0 10px 40px}nav{margin:10px}.ct{padding:0;border:0;box-shadow:none}#bc{display:none}#lo{background-color:#ab0909;height:40px}#lo a{-webkit-transform:rotate(0deg);-moz-transform:rotate(0deg);-ms-transform:rotate(0deg);transform:rotate(0deg);top:0;left:0}#se {padding:5px 10px}#se label{padding:0 0 5px 5px;width:100%;float:none}#se fieldset{padding:5px 0}#se .st{margin:5px;width:55%}#se .ss{margin:5px

0;width:30%}#to,#la,#ca{width:100%;float:none}.gadr,.gadl,.gadt{margin:0
auto;padding:15px 0;width:100%;float:none}#copy{text-
align:center}#btt{display:block}}@media
print{.gadr,.gadc,.gadl,.gadt{display:none}}</style>
<script
src="https://pagead2.googlesyndication.com/pagead/managed/js/adsense/
m202207210101/reactive_library_fy2021.js"></script><script
src="https://partner.googleadservices.com/gampad/cookie.js?
domain=datatypes.net&callback=_gfp_s_&client=ca-pub-
5931537868617298"></script><script
src="https://pagead2.googlesyndication.com/pagead/managed/js/adsense/
m202207210101/show_ads_impl_with_ama_fy2021.js?client=ca-pub-
5931537868617298&plah=datatypes.net"
id="google_shimpl"></script><script async=""
src="https://pagead2.googlesyndication.com/pagead/js/adsbygoogle.js?
client=ca-pub-5931537868617298" crossorigin="anonymous" data-checked-
head="true"></script>
<!-- Global site tag (gtag.js) - Google Analytics -->
<script async="" src="https://www.googletagmanager.com/gtag/js?id=G-
3NCKLL21HC"></script>
<script>
  window.dataLayer = window.dataLayer || [];
  function gtag(){dataLayer.push(arguments);}
  gtag('js', new Date());
  gtag('config','G-3NCKLL21HC',{'site_speed_sample_rate':10});
  var onPage=10,onIV;setTimeout(function(){gtag('event','onRead',{'onread':'10
seconds'});onIV=setInterval(function(){onPage+=30;if(onPage==310)
clearInterval(onIV);gtag('event','onRead',{'onread':onPage+'
seconds'})},30000)},10000);window.onload=function(){setTimeout(function()
{if(document.querySelectorAll && document.querySelectorAll('ins.adsbygoogle'))
{if(document.querySelectorAll('[data-adsbygoogle-status]').length==0)
{gtag('event','adBlock',{'adblock':'true'})}else{gtag('event','adBlock',
{'adblock':'false'})}}},3000)}
</script>
  <meta http-equiv="origin-trial"
content="AzoawhTRDevLR66Y6MROu167EDncFPBvcKOaQispTo9ouEt5LvcBjnRFq
iAByRT+2cDHG1Yj4dXwpLeIhc98/
gIAAACFeyJvcmlnaW4iOiJodHRwczovL2RvdWJsZWNsaWNrLm5ldDo0NDMiLCJmZ
WF0dXJlIjoiUHJpdmFjeVNhbmRib3hBZHNBUElzIiwiZXhwaXJ5IjoxNjYxMjk5MTk5LCJ
pc1N1YmRvbWFpbiI6dHJ1ZSwiaXNUaGlyZFBhcnR5Ijp0cnVlfQ=="><meta http-
equiv="origin-trial"
content="A6+nc62kbJgC46ypOwRsNW6RkDn2x7tgRh0wp7jb3DtFF7oEhu1hhm4r
dZHZ6zXvnKZLlYcBlQUImC4d3kKihAcAAACLeyJvcmlnaW4iOiJodHRwczovL2dvb2d
sZXN5bmRpY2F0aW9uLmNvbTo0NDMiLCJmZWF0dXJlIjoiUHJpdmFjeVNhbmRib3h
BZHNBUElzIiwiZXhwaXJ5IjoxNjYxMjk5MTk5LCJpc1N1YmRvbWFpbiI6dHJ1ZSwiaXN
UaGlyZFBhcnR5Ijp0cnVlfQ=="><meta http-equiv="origin-trial"
content="A/9La288e7MDEU2ifusFnMg1C2Ij6uoa/Z/ylwJIXSsWfK37oESIPbxbt4IU86
OGqDEPnNVruUiMjfKo65H/
CQwAAACLeyJvcmlnaW4iOiJodHRwczovL2dvb2dsZXRhZ3NlcnZpY2VzLmNvbTo0N
DMiLCJmZWF0dXJlIjoiUHJpdmFjeVNhbmRib3hBZHNBUElzIiwiZXhwaXJ5IjoxNjYxMjk
5MTk5LCJpc1N1YmRvbWFpbiI6dHJ1ZSwiaXNUaGlyZFBhcnR5Ijp0cnVlfQ=="><scr
ipt async="" src="https://fundingchoicesmessages.google.com/i/ca-pub-
5931537868617298?ers=2"></script><link rel="preload"
href="https://adservice.google.co.uk/adsid/integrator.js?domain=datatypes.net"

as="script"><script type="text/javascript"
src="https://adservice.google.co.uk/adsid/integrator.js?
domain=datatypes.net"></script><link rel="preload"
href="https://adservice.google.com/adsid/integrator.js?domain=datatypes.net"
as="script"><script type="text/javascript"
src="https://adservice.google.com/adsid/integrator.js?
domain=datatypes.net"></script></head>
  <body aria-hidden="false" style="padding: 91px 0px 0px;">

      <header>

          DataTypes.net

          <form method="get" action="https://datatypes.net/search"
target="_top">
            <fieldset>
              <label for="st">Filename extension:</label>
              <input type="text" id="st" name="s" value="" minlength="1"
required="required" class="st">
              <input type="submit" name="ss" value="Search" class="ss">
            </fieldset>
          </form>

        <div itemscope="" itemtype="https://schema.org/BreadcrumbList"
id="bc">
          <span itemprop="itemListElement" itemscope=""
itemtype="https://schema.org/ListItem"><a itemprop="item" href="/"
title="DataTypes.net">DataTypes.net<meta
itemprop="position" content="1"> >> <span
itemprop="itemListElement" itemscope=""
itemtype="https://schema.org/ListItem">IPS
file<meta itemprop="position" content="2">

      </header>
      <article itemscope="" itemtype="http://schema.org/Dataset" style="height:
auto !important;">
<h1 itemprop="name">IPS file format description</h1>

Many people share .ips files without attaching instructions on how to use it. Yet it isn’t evident for everyone which program a .ips file can be edited, converted or printed with. On this page, we try to provide assistance for handling .ips files.

<!-- datatypes_top -->
<ins class="adsbygoogle" style="display: block; transition: none 0s ease 0s; outline: none; border: none; padding: 0px; border-spacing: 0px; margin-left: 0px; width: 390px; z-index: 30; height: 310px;" data-ad-client="ca-pub-5931537868617298" data-ad-slot="2064910156" data-ad-format="auto" data-adsbygoogle-status="done" data-ad-status="filled"><ins id="aswift_1_expand" tabindex="0" title="Advertisement" aria-label="Advertisement" style="border: none; height: 310px; width: 390px; margin: 0px; padding: 0px; position: relative; visibility: visible; background-color: transparent; display: inline-table;"><ins

id="aswift_1_anchor" style="border: none; height: 310px; width: 390px; margin: 0px; padding: 0px; position: relative; visibility: visible; background-color: transparent; display: block; overflow: visible;"><iframe id="aswift_1" name="aswift_1" style="left:0;position:absolute;top:0;border:0;width:390px;height:310px;" sandbox="allow-forms allow-popups allow-popups-to-escape-sandbox allow-same-origin allow-scripts allow-top-navigation-by-user-activation" width="390" height="310" frameborder="0" marginwidth="0" marginheight="0" vspace="0" hspace="0" allowtransparency="true" scrolling="no" src="https://googleads.g.doubleclick.net/pagead/ads?client=ca-pub-5931537868617298&output=html&h=310&slotname=2064910156&adk=4240958424&adf=2004218480&pi=t.ma~as.2064910156&w=390&fwrnh=102&lmt=1659383047&rafmt=1&psa=0&format=390x310&url=https%3A%2F%2Fdatatypes.net%2Fopen-ips-files&fwr=1&rpe=1&resp_fmts=3&sfro=1&wgl=1&adsid=ChAI8POdlwYQm_uXw5bsypgzEjkAtlNEpJtQhWGOyhqY_Uij9d06iwmTWpvmh2vJRCPe9UzCZJOKwOZSA_W_eP4qLrL-hZlqDlnbVXU&dt=1659417731491&bpp=3&bdt=326&idt=407&shv=r20220727&mjsv=m202207210101&ptt=9&saldr=aa&abxe=1&cookie=ID%3Dce4710b5209621f1-2295edaa7cd400ac%3AT%3D1659417732%3ART%3D1659417732%3AS%3DALNI_MZkn3zbc7l-bP9Kkm1jX1x5G8VqSA&prev_fmts=0x0&nras=1&correlator=7770974438119&frm=20&pv=1&ga_vid=916941665.1659417732&ga_sid=1659417732&ga_hid=919938447&ga_fc=1&u_tz=60&u_his=13&u_h=844&u_w=390&u_ah=844&u_aw=390&u_cd=32&u_sd=3&adx=0&ady=394&biw=390&bih=663&scr_x=0&scr_y=16&eid=44759876%2C44759927%2C44759837%2C44763506%2C44768688%2C44764001&oid=2&pvsid=1452475552890796&tmod=478637325&nvt=1&ref=https%3A%2F%2Fwww.google.co.uk%2F&eae=0&fc=1920&brdim=0%2C0%2C0%2C0%2C390%2C0%2C390%2C844%2C390%2C676&vis=1&rsz=%7C%7CeoE%7C&abl=CS&pfx=0&fu=128&bc=31&jar=2022-08-02-05&ifi=2&uci=a!2&fsb=1&xpc=wAL4R59Hql&p=https%3A//datatypes.net&dtd=986" data-google-container-id="a!2" data-google-query-id="CIHu-uO0p_kCFQ7s1QodEdELPw" data-load-complete="true"></iframe></ins></ins></ins>
<script>
(adsbygoogle = window.adsbygoogle || []).push({});
</script>

2 filename extension(s) found in our database.

    iPIX Script
    VisualBoy Advance IPS Patch File
    .ips file related problems

```
  </ul>
</div>

<div id="result" style="height: auto !important;">
<div class="exttab" style="height: auto !important;">
  <h2 id="ext0"> .ips - iPIX Script</h2>
  <p class="ebox">
The <strong>IPS</strong> graphic files are related to iPIX Viewer.
<strong>IPS</strong> file is an iPIX Script. The iPIX-TV Studio software creates
iPIX scripts, which can control panning and zooming within an iPIX image to
create a guided tour with automated, pre-programmed movement and linking
within one or more immersive images.
  </p>
<div class="gadr" style="width: 390px; height: 663px;">
<!-- datatypes_middle -->
<ins class="adsbygoogle" style="display: block; transition: none 0s ease 0s;
outline: none; border: none; padding: 0px; border-spacing: 0px; margin-left: 0px;
width: 390px; z-index: 30; height: 663px;" data-ad-client="ca-pub-
5931537868617298" data-ad-slot="2691596113" data-ad-format="auto" data-
adsbygoogle-status="done" data-ad-status="filled"><ins id="aswift_2_expand"
tabindex="0" title="Advertisement" aria-label="Advertisement" style="border:
none; height: 663px; width: 390px; margin: 0px; padding: 0px; position: relative;
visibility: visible; background-color: transparent; display: inline-table;"><ins
id="aswift_2_anchor" style="border: none; height: 663px; width: 390px; margin:
0px; padding: 0px; position: relative; visibility: visible; background-color:
transparent; display: block; overflow: hidden;"><iframe id="aswift_2"
name="aswift_2" style="left: 0px; position: absolute; top: 0px; border: 0px;
width: 390px; height: 663px;" sandbox="allow-forms allow-popups allow-popups-
to-escape-sandbox allow-same-origin allow-scripts allow-top-navigation-by-user-
activation" width="390" height="663" frameborder="0" marginwidth="0"
marginheight="0" vspace="0" hspace="0" allowtransparency="true"
scrolling="no" src="https://googleads.g.doubleclick.net/pagead/ads?client=ca-
pub-
5931537868617298&amp;output=html&amp;h=310&amp;slotname=26915961
13&amp;adk=1292914495&amp;adf=3816232964&amp;pi=t.ma~as.26915961
13&amp;w=390&amp;fwrnh=102&amp;lmt=1659383047&amp;rafmt=1&amp;p
sa=0&amp;format=390x310&amp;url=https%3A%2F%2Fdatatypes.net
%2Fopen-ips-
files&amp;fwr=1&amp;rpe=1&amp;resp_fmts=3&amp;sfro=1&amp;wgl=1&amp
;adsid=ChAI8POdlwYQm_uXw5bsypgzEjkAtlNEpJtQhWGOyhqY_Uij9d06iwmTWpv
mh2vJRCPe9UzCZJOKwOZSA_W_eP4qLrL-
hZlqDlnbVXU&amp;dt=1659417731491&amp;bpp=1&amp;bdt=325&amp;idt=4
08&amp;shv=r20220727&amp;mjsv=m202207210101&amp;ptt=9&amp;saldr=
aa&amp;abxe=1&amp;cookie=ID%3Dce4710b5209621f1-2295edaa7cd400ac
%3AT%3D1659417732%3ART%3D1659417732%3AS%3DALNI_MZkn3zbc7l-
bP9Kkm1jX1x5G8VqSA&amp;prev_fmts=0x0%2C390x310&amp;nras=1&amp;co
rrelator=7770974438119&amp;frm=20&amp;pv=1&amp;ga_vid=916941665.16
59417732&amp;ga_sid=1659417732&amp;ga_hid=919938447&amp;ga_fc=1&a
mp;u_tz=60&amp;u_his=13&amp;u_h=844&amp;u_w=390&amp;u_ah=844&am
p;u_aw=390&amp;u_cd=32&amp;u_sd=3&amp;adx=0&amp;ady=1199&amp;bi
w=390&amp;bih=663&amp;scr_x=0&amp;scr_y=16&amp;eid=44759876%2C44
759927%2C44759837%2C44763506%2C44768688%2C44764001&amp;oid=2&
amp;pvsid=1452475552890796&amp;tmod=478637325&amp;nvt=1&amp;ref=
https%3A%2F%2Fwww.google.co.uk
```

%2F&eae=0&fc=1920&brdim=0%2C0%2C0%2C0%2C390%2C0%
2C390%2C844%2C390%2C676&vis=1&rsz=%7C%7CeoEbr
%7C&abl=CS&pfx=0&fu=128&bc=31&jar=2022-08-
02-05&ifi=3&uci=a!
3&btvi=1&fsb=1&xpc=j4LjK9PDVQ&p=https%3A//
datatypes.net&dtd=991" data-google-container-id="a!3" data-google-
query-id="CIX--uO0p_kCFbQjBgAdPDkNUg"
data-load-complete="true"></iframe></ins></ins></ins>
<script>
(adsbygoogle = window.adsbygoogle || []).push({});
</script>

  <dl class="extl">
    <dt>Application:</dt>
    <dd><a href="/ipix-viewer-file-types" title="iPIX Viewer is able to open
the .ips file." class="hi">iPIX Viewer
</dd>
    <dt>Category:</dt>
    <dd>Graphic
files</dd>
    <dt>Mime-type:</dt>
    <dd>application/x-ipscript</dd>
    <dt>Magic:</dt>
    <dd>- / -</dd>
    <dt>Aliases:</dt>
    <dd>-</dd>
    <dt>iPIX Script related extensions:</dt>
    <dd>
<dl>
<dt><a href="/open-dah-files" title="AutoPlay Media Studio Splash
Image">.dah</dt>
<dd>AutoPlay Media Studio Splash Image</dd>
<dt>.ivp</dt>
<dd>PURE Panoramic Image</dd>
<dt>.igi</dt>
<dd>Indigo Image</dd>
<dt>.pvr</dt>
<dd>PowerVR Texture</dd>
<dt><a href="/open-ipp-files" title="Help and Manual Impict
Image">.ipp</dt>
<dd>Help and Manual Impict Image</dd>
<dt><a href="/open-ndpis-files" title="Hamamatsu NanoZoomer Fluorescent
Image">.ndpis</dt>
<dd>Hamamatsu NanoZoomer Fluorescent Image</dd>
</dl>
    </dd>
  </dl>

  <h2 id="ext1"> .ips - VisualBoy Advance IPS Patch File</h2>
  <p class="ebox">

The IPS data files are related to VisualBoy Advance. IPS file is a VisualBoy Advance IPS Patch File. VisualBoy Advance is a Game Boy/Color and Game Boy Advance emulator. The VisualBoy Advance seems to be no longer supported.

  <dl class="extl">
    <dt>Application:</dt>
    <dd>VisualBoy Advance
</dd>
    <dt>Category:</dt>
    <dd>Data files</dd>
    <dt>Mime-type:</dt>
    <dd>application/octet-stream</dd>
    <dt>Magic:</dt>
    <dd>- / -</dd>
    <dt>Aliases:</dt>
    <dd>-</dd>
    <dt>VisualBoy Advance IPS Patch File related extensions:</dt>
    <dd>
<dl>
<dt>.rsw</dt>
<dd>R&R ReportWorks SQL Report Writer Report</dd>
<dt>.nwbak</dt>
<dd>NeatWorks Database Backup</dd>
<dt>.nex</dt>
<dd>NeuroExplorer Data</dd>
<dt>.ld2</dt>
<dd>Lingoes Compiled Dictionary</dd>
<dt>.gxc</dt>
<dd>General CADD Pro Component</dd>
<dt>.ncde</dt>
<dd>NoteCase Pro Encrypted Database</dd>
</dl>
    </dd>
  </dl>

Naturally, other applications may also use the .ips file extension. Even harmful programs can create .ips files. Be especially cautious with .ips files coming from an unknown source!

<h2 id="errors">Can't open a .ips file?</h2>

When you double-click a file to open it, Windows examines the filename extension. If Windows recognizes the filename extension, it opens the file in the program that is associated with that filename extension. When Windows does not recognize a filename extension, you receive the following message:

Windows can't open this file:

example.ips

To open this file, Windows needs to know what program you want to use to open it. Windows can go online to look it up automatically, or you can manually select one from a list of programs that are installed on your computer.

To avoid this error, you need to set the file association correctly.

  Open Control Panel > Control Panel Home > Default Programs > Set Associations.
  Select a file type in the list and click Change Program.

<h2>The .ips file extension is often given incorrectly!</h2>
According to the searches on our site, these misspellings were the most common in the past year:

ils,
ios,
ip,
ipc,
ipe,
ipq,
ipw,
ipx,
ipz,
is,
isp,
jps,
kps,
lps,
ops

<h2>Is it possible that the filename extension is misspelled?</h2>
Similar file extensions in our database:
<dl id="sim">
<dt>.lps</dt>
<dd>Lazarus Project Session</dd>
<dt>.isp</dt>
<dd>Internet Sign-up Settings</dd>
<dt>.pis</dt>
<dd>PS2DIS Project</dd>
<dt>.lps</dt>
<dd>Bryce 7 Leaf Shape</dd>
<dt>.jps</dt>

<dd>Stereo JPEG Image</dd>
<dt>.jps</dt>
<dd>Akeeba Secured Backup Archive</dd>

</dl>

<!-- datatypes_bottom -->
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<h2>Operating systems</h2>

DataTypes.net currently supports the following operating systems:

Windows XP/Vista, Windows 7/8, Windows 10, CentOS, Debian GNU/Linux, Ubuntu Linux, FreeBSD, Mac OS X, iOS, Android

If you find the information on this page useful, please feel free to link to this page.

https://datatypes.net/open-ips-files

If you have useful information about the .ips file format, then write to us!

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c.substring(name.length,c.length);}return '';}
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ng","ext.cite.styles":"ready","skins.minerva.base.styles":"ready","skins.minerva.c
ontent.styles.images":"ready","mediawiki.hlist":"ready","mediawiki.ui.icon":"read
y","mediawiki.ui.button":"ready","skins.minerva.icons.wikimedia":"ready","skins.
minerva.mainMenu.icons":"ready","skins.minerva.mainMenu.styles":"ready","ski
ns.minerva.amc.styles":"ready","mobile.init.styles":"ready","ext.relatedArticles.st
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Events","ext.navigationTiming","ext.cx.entrypoints.languagesearcher.init","mw.e
xternalguidance.init","ext.centralNotice.geoIP",
"ext.centralNotice.startUp","ext.gadget.switcher","ext.centralauth.centralautolog
in","ext.popups","ext.cx.entrypoints.mffrequentlanguages","ext.growthExperime
nts.SuggestedEditSession"];</script>
<script>(RLQ=window.RLQ||[]).push(function()
{mw.loader.implement("user.options@12s5i",function($,jQuery,require,module)

{mw.user.tokens.set({"patrolToken":"+\\","watchToken":"+\\","csrfToken":"+\\"}
);});});</script>
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%7Cmediawiki.ui.button%2Cicon%7Cmobile.init.styles
%7Cskins.minerva.amc.styles%7Cskins.minerva.base.styles
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%7Cskins.minerva.mainMenu.icons
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erva&target=mobile"></script>
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<meta property="og:type" content="website">
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<link rel="alternate" type="application/x-wiki" title="Edit this page"
href="/w/index.php?title=ROM_hacking&action=edit">
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<link rel="shortcut icon" href="/static/favicon/wikipedia.ico">
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<link rel="dns-prefetch" href="//login.wikimedia.org">
<style>
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progressive:hover{color:#6a8fda}.mw-ui-anchor.mw-ui-progressive:focus,.mw-
ui-anchor.mw-ui-progressive:active{color:#254a95;outline:0}.mw-ui-anchor.mw-
ui-progressive.mw-ui-quiet{color:#202122;text-decoration:none}.mw-ui-
anchor.mw-ui-progressive.mw-ui-quiet:hover{color:#3366cc}.mw-ui-anchor.mw-
ui-progressive.mw-ui-quiet:focus,.mw-ui-anchor.mw-ui-progressive.mw-ui-
quiet:active{color:#254a95}.mw-ui-anchor.mw-ui-
destructive{color:#dd3333}.mw-ui-anchor.mw-ui-
destructive:hover{color:#e76e6e}.mw-ui-anchor.mw-ui-destructive:focus,.mw-
ui-anchor.mw-ui-destructive:active{color:#ae1d1d;outline:0}.mw-ui-anchor.mw-
ui-destructive.mw-ui-quiet{color:#202122;text-decoration:none}.mw-ui-
anchor.mw-ui-destructive.mw-ui-quiet:hover{color:#dd3333}.mw-ui-anchor.mw-
ui-destructive.mw-ui-quiet:focus,.mw-ui-anchor.mw-ui-destructive.mw-ui-
quiet:active{color:#ae1d1d}
.page-list,.topic-title-list,.site-link-list{overflow:hidden}.page-list li,.topic-title-list
li,.site-link-list li{color:#54595d;position:relative;border-bottom:1px solid
#eaecf0;padding-top:0.8em;padding-bottom:0.8em;margin:-1px 0 0;line-

height:19px}.page-list li .watch-this-article,.topic-title-list li .watch-this-article,.site-link-list li .watch-this-article{position:absolute;right:0;top:0.8em;margin-top:1px}.page-list li .watch-this-article button,.topic-title-list li .watch-this-article button,.site-link-list li .watch-this-article button{position:absolute;text-indent:inherit;outline:0}.page-list li > a:not(.mw-ui-icon-element),.topic-title-list li > a:not(.mw-ui-icon-element),.site-link-list li > a:not(.mw-ui-icon-element){display:block;color:#72777d}.page-list li > a:not(.mw-ui-icon-element):active,.topic-title-list li > a:not(.mw-ui-icon-element):active,.site-link-list li > a:not(.mw-ui-icon-element):active,.page-list li > a:not(.mw-ui-icon-element):hover,.topic-title-list li > a:not(.mw-ui-icon-element):hover,.site-link-list li > a:not(.mw-ui-icon-element):hover,.page-list li > a:not(.mw-ui-icon-element):visited,.topic-title-list li > a:not(.mw-ui-icon-element):visited,.site-link-list li > a:not(.mw-ui-icon-element):visited{text-decoration:none;color:#72777d}.page-list.thumbs li,.topic-title-list.thumbs li,.site-link-list.thumbs li,.page-list.side-list li,.topic-title-list.side-list li,.site-link-list.side-list li{padding-left:85px}.page-list .info,.topic-title-list .info,.site-link-list .info{font-size:0.7em;text-transform:uppercase}.page-list .info,.topic-title-list .info,.site-link-list .info,.page-list .component,.topic-title-list .component,.site-link-list .component{color:#72777d;line-height:1.2}.page-list .title h3,.topic-title-list .title h3,.site-link-list .title h3,.page-list .title .mw-mf-user,.topic-title-list .title .mw-mf-user,.site-link-list .title .mw-mf-user,.page-list .title .component,.topic-title-list .title .component,.site-link-list .title .component,.page-list .title .info,.topic-title-list .title .info,.site-link-list .title .info{margin:0.5em 0}.page-list.thumbs .title,.topic-title-list.thumbs .title,.site-link-list.thumbs .title{padding-right:24px}.page-list .list-thumb,.topic-title-list .list-thumb,.site-link-list .list-thumb{position:absolute;width:70px;height:100%;top:0;left:0}.page-list p,.topic-title-list p,.site-link-list p{font-size:0.9em;line-height:normal}.page-list.side-list .list-thumb,.topic-title-list.side-list .list-thumb,.site-link-list.side-list .list-thumb{padding-top:0.8em;padding-bottom:0.8em;color:#202122}.page-list.side-list .list-thumb p,.topic-title-list.side-list .list-thumb p,.site-link-list.side-list .list-thumb p{line-height:1.2;margin:0.5em 0}.page-list.side-list .list-thumb .timestamp,.topic-title-list.side-list .list-thumb .timestamp,.site-link-list.side-list .list-thumb .timestamp{margin-bottom:0.65em}@media all and (min-width:720px){.page-summary-list,.topic-title-list,.site-link-list{padding-top:0;padding-bottom:0}}
.page-summary h2,.page-summary h3{font:inherit;font-weight:bold;color:#54595d}.page-summary h2 a,.page-summary h3 a{color:inherit}.page-summary h2 strong,.page-summary h3 strong{text-decoration:underline}.list-header{font-weight:bold;font-size:0.85em;padding-top:0.5em;padding-bottom:0.4em;background-color:#eaecf0;color:#72777d}.list-thumb{background-repeat:no-repeat;background-position:center center}.list-thumb.list-thumb-x{background-size:100% auto}.list-thumb.list-thumb-y{background-size:auto 100%}.list-thumb.list-thumb-none{background-color:#eaecf0;background-size:40px 40px;opacity:0.51}
.mw-ui-icon-mf-spinner:before{background-image:url(/w/load.php?modules=mobile.placeholder.images&image=mw-ui-icon-mf-spinner%3Abefore&format=rasterized&skin=minerva&version=11vop);background-image:linear-gradient(transparent,transparent),url(/w/load.php?modules=mobile.placeholder.images&image=mw-ui-icon-mf-spinner%3Abefore&format=original&skin=minerva&version=11vop)}.list-thumb-none{background-image:url(/w/load.php?

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none&format=rasterized&skin=minerva&version=11vop);background-
image:linear-gradient(transparent,transparent),url(/w/load.php?
modules=mobile.placeholder.images&image=list-thumb-
none&format=original&skin=minerva&version=11vop)}.userpage-image-
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modules=mobile.placeholder.images&image=userpage-image-
placeholder&format=rasterized&skin=minerva&version=11vop);background-
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modules=mobile.placeholder.images&image=userpage-image-
placeholder&format=original&skin=minerva&version=11vop)}.amc-outreach-
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a&version=1ovmh);background-image:linear-
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6.272v7.456L6.272 19h7.456L19 13.728V6.272zM11 15H9v-2h2zm0-4H9V5h2z
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viewBox=%220 0 20 20%22%3E%3Ctitle%3E error %3C/title%3E%3Cg fill=
%22%23fff%22%3E%3Cpath d=%22M13.728 1H6.272L1 6.272v7.456L6.272
19h7.456L19 13.728V6.272zM11 15H9v-2h2zm0-4H9V5h2z%22/%3E%3C/g%3E
%3C/svg%3E")}.mw-ui-icon-mf-error-progressive:before{background-
image:url(/w/load.php?
modules=mobile.startup.images&image=error&variant=progressive&format=ra
sterized&skin=minerva&version=1ovmh);background-image:linear-
gradient(transparent,transparent),url("data:image/svg+xml,%3Csvg xmlns=
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19h7.456L19 13.728V6.272zM11 15H9v-2h2zm0-4H9V5h2z%22/%3E%3C/g%3E
%3C/svg%3E")}.mw-ui-icon-mf-error-error:before{background-image:url(/w/
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d&skin=minerva&version=1ovmh);background-image:linear-
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%22%23d33%22%3E%3Cpath d=%22M13.728 1H6.272L1 6.272v7.456L6.272
19h7.456L19 13.728V6.272zM11 15H9v-2h2zm0-4H9V5h2z%22/%3E%3C/g%3E
%3C/svg%3E")}.mw-ui-icon-mf-articlesSearch:before{background-image:url(/w/
load.php?
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g=en&skin=minerva&version=1ovmh);background-image:linear-
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4.7 0 0 1-2.3.6 4.6 4.7 0 1 1 3.7-1.9l2.8 3V4.9A1.9 1.9 0 0 0 13.1 3H4a1.9 1.9 0 0
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0-2 1.9V18a1.9 1.9 0 0 0 1.9 2H13a1.9 1.9 0 0 0 1.4-.6z%22/%3E%3Ccircle cx=
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13.1 3H4a1.9 1.9 0 0 0-2 1.9V18a1.9 1.9 0 0 0 1.9 2H13a1.9 1.9 0 0 0 1.4-.6z
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nerva&version=1ovmh);background-image:linear-
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viewBox=%220 0 20 20%22%3E%3Ctitle%3E reference %3C/title%3E%3Cg fill=
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0 0-2 2v14a2 2 0 0 0 2 2h10a2 2 0 0 0 2-2V3a2 2 0 0 0-2-2z%22/%3E%3C/g%3E
%3C/svg%3E")}.mw-ui-icon-mf-reference-invert:before{background-image:url(/
w/load.php?
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erized&skin=minerva&version=1ovmh);background-image:linear-
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%22%23fff%22%3E%3Cpath d=%22m15 10-2.78-2.78L9.44 10V1H5a2 2 0 0 0-2
2v14a2 2 0 0 0 2 2h10a2 2 0 0 0 2-2V3a2 2 0 0
0-2-2z%22/%3E%3C/g%3E%3C/svg%3E")}.mw-ui-icon-mf-reference-
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t=rasterized&skin=minerva&version=1ovmh);background-image:linear-
gradient(transparent,transparent),url("data:image/svg+xml,%3Csvg xmlns=
%22http://www.w3.org/2000/svg%22 width=%2220%22 height=%2220%22
viewBox=%220 0 20 20%22%3E%3Ctitle%3E reference %3C/title%3E%3Cg fill=
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2 2v14a2 2 0 0 0 2 2h10a2 2 0 0 0 2-2V3a2 2 0 0 0-2-2z%22/%3E%3C/g%3E
%3C/svg%3E")}.mw-ui-icon-mf-clear:before{background-image:url(/w/load.php?
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a&version=1ovmh);background-image:linear-
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viewBox=%220 0 20 20%22%3E%3Ctitle%3E clear %3C/title%3E%3Cg fill=
%22%2354595d%22%3E%3Cpath d=%22M10 0a10 10 0 1 0 10 10A10 10 0 0 0
10 0zm5.66 14.24-1.41 1.41L10 11.41l-4.24 4.25-1.42-1.42L8.59 10 4.34
5.76l1.42-1.42L10 8.59l4.24-4.24 1.41 1.41L11.41
10z%22/%3E%3C/g%3E%3C/svg%3E")}.mw-ui-icon-mf-clear-
invert:before{background-image:url(/w/load.php?
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d&skin=minerva&version=1ovmh);background-image:linear-
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0zm5.66 14.24-1.41 1.41L10 11.41l-4.24 4.25-1.42-1.42L8.59 10 4.34 5.76l1.42-
1.42L10 8.59l4.24-4.24 1.41 1.41L11.41 10z%22/%3E%3C/g%3E%3C/svg
%3E")}.mw-ui-icon-mf-clear-progressive:before{background-image:url(/w/
load.php?
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sterized&skin=minerva&version=1ovmh);background-image:linear-
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viewBox=%220 0 20 20%22%3E%3Ctitle%3E clear %3C/title%3E%3Cg fill=
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0zm5.66 14.24-1.41 1.41L10 11.41l-4.24 4.25-1.42-1.42L8.59 10 4.34 5.76l1.42-
1.42L10 8.59l4.24-4.24 1.41 1.41L11.41 10z%22/%3E%3C/g%3E%3C/svg%3E")}
.mw-ui-icon-mf-alert:before{background-image:url(/w/load.php?
modules=mobile.ooui.icons&image=alert&format=rasterized&skin=minerva&ve
rsion=17qb8);background-image:linear-
gradient(transparent,transparent),url("data:image/svg+xml,%3Csvg xmlns=
%22http://www.w3.org/2000/svg%22 width=%2220%22 height=%2220%22
viewBox=%220 0 20 20%22%3E%3Ctitle%3E alert %3C/title%3E%3Cpath d=
%22M11.53 2.3A1.85 1.85 0 0 0 10 1.21 1.85 1.85 0 0 0 8.48 2.3L.36 16.36C-.48
17.81.21 19 1.88 19h16.24c1.67 0 2.36-1.19 1.52-2.64zM11 16H9v-2h2zm0-
4H9V6h2z%22/%3E%3C/svg%3E")}.mw-ui-icon-mf-alert-
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modules=mobile.ooui.icons&image=alert&variant=base20&format=rasterized&s
kin=minerva&version=17qb8);background-image:linear-
gradient(transparent,transparent),url("data:image/svg+xml,%3Csvg xmlns=
%22http://www.w3.org/2000/svg%22 width=%2220%22 height=%2220%22

viewBox=%220 0 20 20%22%3E%3Ctitle%3E alert %3C/title%3E%3Cg fill=
%22%2354595d%22%3E%3Cpath d=%22M11.53 2.3A1.85 1.85 0 0 0 10 1.21
1.85 1.85 0 0 0 8.48 2.3L.36 16.36C-.48 17.81.21 19 1.88 19h16.24c1.67 0 2.36-
1.19 1.52-2.64zM11 16H9v-2h2zm0-4H9V6h2z%22/%3E%3C/g%3E%3C/svg
%3E")}.mw-ui-icon-mf-alert-gray:before{background-image:url(/w/load.php?
modules=mobile.ooui.icons&image=alert&variant=gray&format=rasterized&ski
n=minerva&version=17qb8);background-image:linear-
gradient(transparent,transparent),url("data:image/svg+xml,%3Csvg xmlns=
%22http://www.w3.org/2000/svg%22 width=%2220%22 height=%2220%22
viewBox=%220 0 20 20%22%3E%3Ctitle%3E alert %3C/title%3E%3Cg fill=
%22%23a2a9b1%22%3E%3Cpath d=%22M11.53 2.3A1.85 1.85 0 0 0 10 1.21
1.85 1.85 0 0 0 8.48 2.3L.36 16.36C-.48 17.81.21 19 1.88 19h16.24c1.67 0 2.36-
1.19 1.52-2.64zM11 16H9v-2h2zm0-4H9V6h2z%22/%3E%3C/g%3E%3C/svg
%3E")}.mw-ui-icon-mf-alert-invert:before{background-image:url(/w/load.php?
modules=mobile.ooui.icons&image=alert&variant=invert&format=rasterized&sk
in=minerva&version=17qb8);background-image:linear-
gradient(transparent,transparent),url("data:image/svg+xml,%3Csvg xmlns=
%22http://www.w3.org/2000/svg%22 width=%2220%22 height=%2220%22
viewBox=%220 0 20 20%22%3E%3Ctitle%3E alert %3C/title%3E%3Cg fill=
%22%23fff%22%3E%3Cpath d=%22M11.53 2.3A1.85 1.85 0 0 0 10 1.21 1.85
1.85 0 0 0 8.48 2.3L.36 16.36C-.48 17.81.21 19 1.88 19h16.24c1.67 0 2.36-1.19
1.52-2.64zM11 16H9v-2h2zm0-4H9V6h2z%22/%3E%3C/g%3E%3C/svg
%3E")}.mw-ui-icon-mf-close:before{background-image:url(/w/load.php?
modules=mobile.ooui.icons&image=close&format=rasterized&skin=minerva&ve
rsion=17qb8);background-image:linear-
gradient(transparent,transparent),url("data:image/svg+xml,%3Csvg xmlns=
%22http://www.w3.org/2000/svg%22 width=%2220%22 height=%2220%22
viewBox=%220 0 20 20%22%3E%3Ctitle%3E close %3C/title%3E%3Cpath d=
%22m4.3 2.9 12.8 12.8-1.4 1.4L2.9 4.3z%22/%3E%3Cpath d=%22M17.1 4.3 4.3
17.1l-1.4-1.4L15.7 2.9z%22/%3E%3C/svg%3E")}.mw-ui-icon-mf-close-
base20:before{background-image:url(/w/load.php?
modules=mobile.ooui.icons&image=close&variant=base20&format=rasterized&
skin=minerva&version=17qb8);background-image:linear-
gradient(transparent,transparent),url("data:image/svg+xml,%3Csvg xmlns=
%22http://www.w3.org/2000/svg%22 width=%2220%22 height=%2220%22
viewBox=%220 0 20 20%22%3E%3Ctitle%3E close %3C/title%3E%3Cg fill=
%22%2354595d%22%3E%3Cpath d=%22m4.3 2.9 12.8 12.8-1.4 1.4L2.9 4.3z
%22/%3E%3Cpath d=%22M17.1 4.3 4.3 17.1l-1.4-1.4L15.7 2.9z%22/%3E%3C/g
%3E%3C/svg%3E")}.mw-ui-icon-mf-close-gray:before{background-image:url(/w/
load.php?
modules=mobile.ooui.icons&image=close&variant=gray&format=rasterized&ski
n=minerva&version=17qb8);background-image:linear-
gradient(transparent,transparent),url("data:image/svg+xml,%3Csvg xmlns=
%22http://www.w3.org/2000/svg%22 width=%2220%22 height=%2220%22
viewBox=%220 0 20 20%22%3E%3Ctitle%3E close %3C/title%3E%3Cg fill=
%22%23a2a9b1%22%3E%3Cpath d=%22m4.3 2.9 12.8 12.8-1.4 1.4L2.9 4.3z
%22/%3E%3Cpath d=%22M17.1 4.3 4.3 17.1l-1.4-1.4L15.7 2.9z%22/%3E%3C/g
%3E%3C/svg%3E")}.mw-ui-icon-mf-close-invert:before{background-image:url(/
w/load.php?
modules=mobile.ooui.icons&image=close&variant=invert&format=rasterized&s
kin=minerva&version=17qb8);background-image:linear-
gradient(transparent,transparent),url("data:image/svg+xml,%3Csvg xmlns=
%22http://www.w3.org/2000/svg%22 width=%2220%22 height=%2220%22
viewBox=%220 0 20 20%22%3E%3Ctitle%3E close %3C/title%3E%3Cg fill=

%22%23fff%22%3E%3Cpath d=%22m4.3 2.9 12.8 12.8-1.4 1.4L2.9 4.3z
%22/%3E%3Cpath d=%22M17.1 4.3 4.3 17.1l-1.4-1.4L15.7 2.9z%22/%3E%3C/g
%3E%3C/svg%3E")}.mw-ui-icon-mf-expand:before{background-image:url(/w/
load.php?
modules=mobile.ooui.icons&image=expand&format=rasterized&skin=minerva&
version=17qb8);background-image:linear-
gradient(transparent,transparent),url("data:image/svg+xml,%3Csvg xmlns=
%22http://www.w3.org/2000/svg%22 width=%2220%22 height=%2220%22
viewBox=%220 0 20 20%22%3E%3Ctitle%3E expand %3C/title%3E%3Cpath d=
%22m17.5 4.75-7.5 7.5-7.5-7.5L1 6.25l9 9 9-9z%22/%3E%3C/svg%3E")}.mw-ui-
icon-mf-expand-base20:before{background-image:url(/w/load.php?
modules=mobile.ooui.icons&image=expand&variant=base20&format=rasterize
d&skin=minerva&version=17qb8);background-image:linear-
gradient(transparent,transparent),url("data:image/svg+xml,%3Csvg xmlns=
%22http://www.w3.org/2000/svg%22 width=%2220%22 height=%2220%22
viewBox=%220 0 20 20%22%3E%3Ctitle%3E expand %3C/title%3E%3Cg fill=
%22%2354595d%22%3E%3Cpath d=%22m17.5 4.75-7.5 7.5-7.5-7.5L1 6.25l9 9
9-9z%22/%3E%3C/g%3E%3C/svg%3E")}.mw-ui-icon-mf-expand-
gray:before{background-image:url(/w/load.php?
modules=mobile.ooui.icons&image=expand&variant=gray&format=rasterized&s
kin=minerva&version=17qb8);background-image:linear-
gradient(transparent,transparent),url("data:image/svg+xml,%3Csvg xmlns=
%22http://www.w3.org/2000/svg%22 width=%2220%22 height=%2220%22
viewBox=%220 0 20 20%22%3E%3Ctitle%3E expand %3C/title%3E%3Cg fill=
%22%23a2a9b1%22%3E%3Cpath d=%22m17.5 4.75-7.5 7.5-7.5-7.5L1 6.25l9 9
9-9z%22/%3E%3C/g%3E%3C/svg%3E")}.mw-ui-icon-mf-expand-
invert:before{background-image:url(/w/load.php?
modules=mobile.ooui.icons&image=expand&variant=invert&format=rasterized
&skin=minerva&version=17qb8);background-image:linear-
gradient(transparent,transparent),url("data:image/svg+xml,%3Csvg xmlns=
%22http://www.w3.org/2000/svg%22 width=%2220%22 height=%2220%22
viewBox=%220 0 20 20%22%3E%3Ctitle%3E expand %3C/title%3E%3Cg fill=
%22%23fff%22%3E%3Cpath d=%22m17.5 4.75-7.5 7.5-7.5-7.5L1 6.25l9 9 9-9z
%22/%3E%3C/g%3E%3C/svg%3E")}.mw-ui-icon-mf-next:before{background-
image:url(/w/load.php?
modules=mobile.ooui.icons&image=next&format=rasterized&lang=en&skin=mi
nerva&version=17qb8);background-image:linear-
gradient(transparent,transparent),url("data:image/svg+xml,%3Csvg xmlns=
%22http://www.w3.org/2000/svg%22 width=%2220%22 height=%2220%22
viewBox=%220 0 20 20%22%3E%3Ctitle%3E next %3C/title%3E%3Cpath d=
%22M7 1 5.6 2.5 13 10l-7.4 7.5L7 19l9-9z%22/%3E%3C/svg%3E")}.mw-ui-icon-
mf-next-base20:before{background-image:url(/w/load.php?
modules=mobile.ooui.icons&image=next&variant=base20&format=rasterized&l
ang=en&skin=minerva&version=17qb8);background-image:linear-
gradient(transparent,transparent),url("data:image/svg+xml,%3Csvg xmlns=
%22http://www.w3.org/2000/svg%22 width=%2220%22 height=%2220%22
viewBox=%220 0 20 20%22%3E%3Ctitle%3E next %3C/title%3E%3Cg fill=
%22%2354595d%22%3E%3Cpath d=%22M7 1 5.6 2.5 13 10l-7.4 7.5L7 19l9-9z
%22/%3E%3C/g%3E%3C/svg%3E")}.mw-ui-icon-mf-next-
gray:before{background-image:url(/w/load.php?
modules=mobile.ooui.icons&image=next&variant=gray&format=rasterized&lan
g=en&skin=minerva&version=17qb8);background-image:linear-
gradient(transparent,transparent),url("data:image/svg+xml,%3Csvg xmlns=
%22http://www.w3.org/2000/svg%22 width=%2220%22 height=%2220%22

viewBox=%220 0 20 20%22%3E%3Ctitle%3E next %3C/title%3E%3Cg fill=
%22%23a2a9b1%22%3E%3Cpath d=%22M7 1 5.6 2.5 13 10l-7.4 7.5L7 19l9-9z
%22/%3E%3C/g%3E%3C/svg%3E")}.mw-ui-icon-mf-next-
invert:before{background-image:url(/w/load.php?
modules=mobile.ooui.icons&image=next&variant=invert&format=rasterized&la
ng=en&skin=minerva&version=17qb8);background-image:linear-
gradient(transparent,transparent),url("data:image/svg+xml,%3Csvg xmlns=
%22http://www.w3.org/2000/svg%22 width=%2220%22 height=%2220%22
viewBox=%220 0 20 20%22%3E%3Ctitle%3E next %3C/title%3E%3Cg fill=
%22%23fff%22%3E%3Cpath d=%22M7 1 5.6 2.5 13 10l-7.4 7.5L7 19l9-9z
%22/%3E%3C/g%3E%3C/svg%3E")}.mw-ui-icon-mf-previous:before{background-
image:url(/w/load.php?
modules=mobile.ooui.icons&image=previous&format=rasterized&lang=en&skin
=minerva&version=17qb8);background-image:linear-
gradient(transparent,transparent),url("data:image/svg+xml,%3Csvg xmlns=
%22http://www.w3.org/2000/svg%22 width=%2220%22 height=%2220%22
viewBox=%220 0 20 20%22%3E%3Ctitle%3E previous %3C/title%3E%3Cpath d=
%22m4 10 9 9 1.4-1.5L7 10l7.4-7.5L13 1z%22/%3E%3C/svg%3E")}.mw-ui-icon-
mf-previous-base20:before{background-image:url(/w/load.php?
modules=mobile.ooui.icons&image=previous&variant=base20&format=rasteriz
ed&lang=en&skin=minerva&version=17qb8);background-image:linear-
gradient(transparent,transparent),url("data:image/svg+xml,%3Csvg xmlns=
%22http://www.w3.org/2000/svg%22 width=%2220%22 height=%2220%22
viewBox=%220 0 20 20%22%3E%3Ctitle%3E previous %3C/title%3E%3Cg fill=
%22%2354595d%22%3E%3Cpath d=%22m4 10 9 9 1.4-1.5L7 10l7.4-7.5L13 1z
%22/%3E%3C/g%3E%3C/svg%3E")}.mw-ui-icon-mf-previous-
gray:before{background-image:url(/w/load.php?
modules=mobile.ooui.icons&image=previous&variant=gray&format=rasterized
&lang=en&skin=minerva&version=17qb8);background-image:linear-
gradient(transparent,transparent),url("data:image/svg+xml,%3Csvg xmlns=
%22http://www.w3.org/2000/svg%22 width=%2220%22 height=%2220%22
viewBox=%220 0 20 20%22%3E%3Ctitle%3E previous %3C/title%3E%3Cg fill=
%22%23a2a9b1%22%3E%3Cpath d=%22m4 10 9 9 1.4-1.5L7 10l7.4-7.5L13 1z
%22/%3E%3C/g%3E%3C/svg%3E")}.mw-ui-icon-mf-previous-
invert:before{background-image:url(/w/load.php?
modules=mobile.ooui.icons&image=previous&variant=invert&format=rasterized
&lang=en&skin=minerva&version=17qb8);background-image:linear-
gradient(transparent,transparent),url("data:image/svg+xml,%3Csvg xmlns=
%22http://www.w3.org/2000/svg%22 width=%2220%22 height=%2220%22
viewBox=%220 0 20 20%22%3E%3Ctitle%3E previous %3C/title%3E%3Cg fill=
%22%23fff%22%3E%3Cpath d=%22m4 10 9 9 1.4-1.5L7 10l7.4-7.5L13 1z
%22/%3E%3C/g%3E%3C/svg%3E")}
.mw-ui-icon-minerva-download:before{background-image:url(/w/load.php?
modules=skins.minerva.icons.images.scripts.misc&image=download&format=ra
sterized&skin=minerva&version=j61z2);background-image:linear-
gradient(transparent,transparent),url("data:image/svg+xml,%3Csvg xmlns=
%22http://www.w3.org/2000/svg%22 width=%2220%22 height=%2220%22
viewBox=%220 0 20 20%22%3E%3Ctitle%3E download %3C/title%3E%3Cg fill=
%22%2354595d%22%3E%3Cpath d=%22M17 12v5H3v-5H1v5a2 2 0 0 0 2
2h14a2 2 0 0 0 2-2v-5z%22/%3E%3Cpath d=%22M15 9h-4V1H9v8H5l5 6z
%22/%3E%3C/g%3E%3C/svg%3E")}.mw-ui-icon-minerva-
listBullet:before{background-image:url(/w/load.php?
modules=skins.minerva.icons.images.scripts.misc&image=listBullet&format=ras
terized&lang=en&skin=minerva&version=j61z2);background-image:linear-

gradient(transparent,transparent),url("data:image/svg+xml,%3Csvg xmlns=
%22http://www.w3.org/2000/svg%22 width=%2220%22 height=%2220%22
viewBox=%220 0 20 20%22%3E%3Ctitle%3E bullet list %3C/title%3E%3Cg fill=
%22%2354595d%22%3E%3Cpath d=%22M7 15h12v2H7zm0-6h12v2H7zm0-
6h12v2H7z%22/%3E%3Ccircle cx=%223%22 cy=%224%22 r=%222%22/%3E
%3Ccircle cx=%223%22 cy=%2210%22 r=%222%22/%3E%3Ccircle cx=
%223%22 cy=%2216%22 r=%222%22/%3E%3C/g%3E%3C/svg%3E")}
.mw-ui-icon-minerva-issue-severity-low-lowColor:before{background-
image:url(/w/load.php?
modules=skins.minerva.icons.page.issues.uncolored&image=issue-severity-low-
lowColor&format=rasterized&skin=minerva&version=1g0il);background-
image:linear-gradient(transparent,transparent),url("data:image/svg+xml,%3Csvg
xmlns=%22http://www.w3.org/2000/svg%22
xmlns:xlink=%22http://www.w3.org/1999/xlink%22 width=%2220%22 height=
%2220%22 viewBox=%220 0 20 20%22%3E %3Ctitle%3E low severity %3C/title
%3E %3Cdefs%3E %3Cpath id=%22a%22 d=%22M17.9 11.9c-1.4-.3-3.4-2.8-4.8-
4.6l-8.8 6.2 2.3 3.3c.8 1.2 2.3 1.8 4 1.7l-1.6-2c-.1-.2 0-.4.1-.5.2-.1.4-.1.5.1l1.8
2.3c.8-.2 1.7-.6 2.6-1.1-1.3-.8-2.2-2.4-2.2-2.4-.1-.2 0-.4.1-.5.2-.1.4 0 .5.1 0 0 1 1.7
2.3 2.3.9-.7 1.6-1.3 2.1-1.9-2.1-.4-3.1-1.9-3.2-1.9-.1-.2-.1-.4.1-.5.2-.1.4-.1.5.1a5 5
0 0 0 3.1 1.7 4 4 0 0 0 .8-2c.1-.2 0-.3-.2-.4z%22/%3E %3C/defs%3E %3CclipPath
id=%22b%22%3E %3Cuse xlink:href=%22%23a%22 overflow=%22visible
%22/%3E %3C/clipPath%3E %3Cpath fill=%22%23f5a623%22 d=%22M-.7
2.3h23.9v21.2H-.7z%22 clip-path=%22url%28%23b%29%22/%3E %3Cdefs%3E
%3Cpath id=%22c%22 d=%22M11.6 5.2a1 1 0 0 0-1.3-.2L7.9 6.6 4.5 1.8a.7.7 0
0 0-.9-.2L2.1 2.7c-.3.2-.3.6-.2.8l3.4 4.8L3 10a1 1 0 0 0-.2 1.3L4 13l8.8-6.1-1.2-
1.7z%22/%3E %3C/defs%3E %3CclipPath id=%22d%22%3E %3Cuse xlink:href=
%22%23c%22 overflow=%22visible%22/%3E %3C/clipPath%3E %3Cpath fill=
%22%23774b20%22 d=%22M-3.2-3.5h20.9V18H-3.2z%22 clip-path=%22url
%28%23d%29%22/%3E %3C/svg%3E")}.mw-ui-icon-minerva-issue-type-move-
defaultColor:before{background-image:url(/w/load.php?
modules=skins.minerva.icons.page.issues.uncolored&image=issue-type-move-
defaultColor&format=rasterized&skin=minerva&version=1g0il);background-
image:linear-gradient(transparent,transparent),url("data:image/svg+xml,%3Csvg
xmlns=%22http://www.w3.org/2000/svg%22 width=%2220%22 height=
%2220%22 viewBox=%220 0 20 20%22%3E %3Ctitle%3E move %3C/title%3E
%3Cpath fill=%22%2336c%22 d=%22M6 8.7V12H0v4h6v3l3-2.6 3-2.6-3-2.5z
%22/%3E %3Cpath fill=%22%23d33%22 d=%22M14 4V.7l-3 2.6-3 2.5 3 2.6 3
2.6V8h6V4z%22/%3E %3C/svg%3E")}
.mw-ui-icon-minerva-issue-generic-defaultColor:before{background-image:url(/
w/load.php?
modules=skins.minerva.icons.page.issues.default.color&image=issue-
generic&format=rasterized&skin=minerva&version=6pvbm);background-
image:linear-gradient(transparent,transparent),url("data:image/svg+xml,%3Csvg
xmlns=%22http://www.w3.org/2000/svg%22 width=%2220%22 height=
%2220%22 viewBox=%220 0 20 20%22%3E%3Ctitle%3E alert %3C/title%3E
%3Cg fill=%22%2354595d%22%3E %3Cpath d=%22M19.64 16.36 11.53
2.3A1.85 1.85 0 0 0 10 1.21 1.85 1.85 0 0 0 8.48 2.3L.36 16.36C-.48 17.81.21 19
1.88 19h16.24c1.67 0 2.36-1.19 1.52-2.64zM11 16H9v-2h2zm0-4H9V6h2z
%22/%3E %3C/g%3E%3C/svg%3E")}.mw-ui-icon-minerva-issue-generic-
lowColor:before{background-image:url(/w/load.php?
modules=skins.minerva.icons.page.issues.default.color&image=issue-
generic&variant=lowColor&format=rasterized&skin=minerva&version=6pvbm);
background-image:linear-gradient(transparent,transparent),url("data:image/
svg+xml,%3Csvg xmlns=%22http://www.w3.org/2000/svg%22 width=

%2220%22 height=%2220%22 viewBox=%220 0 20 20%22%3E%3Ctitle%3E alert %3C/title%3E%3Cg fill=%22%23fc3%22%3E %3Cpath d=%22M19.64 16.36 11.53 2.3A1.85 1.85 0 0 0 10 1.21 1.85 1.85 0 0 0 8.48 2.3L.36 16.36C-.48 17.81.21 19 1.88 19h16.24c1.67 0 2.36-1.19 1.52-2.64zM11 16H9v-2h2zm0-4H9V6h2z%22/%3E %3C/g%3E%3C/svg%3E")}.mw-ui-icon-minerva-issue-generic-mediumColor:before{background-image:url(/w/load.php?modules=skins.minerva.icons.page.issues.default.color&image=issue-generic&variant=mediumColor&format=rasterized&skin=minerva&version=6pvbm);background-image:linear-gradient(transparent,transparent),url("data:image/svg+xml,%3Csvg xmlns=%22http://www.w3.org/2000/svg%22 width=%2220%22 height=%2220%22 viewBox=%220 0 20 20%22%3E%3Ctitle%3E alert %3C/title%3E%3Cg fill=%22%23ff5d01%22%3E %3Cpath d=%22M19.64 16.36 11.53 2.3A1.85 1.85 0 0 0 10 1.21 1.85 1.85 0 0 0 8.48 2.3L.36 16.36C-.48 17.81.21 19 1.88 19h16.24c1.67 0 2.36-1.19 1.52-2.64zM11 16H9v-2h2zm0-4H9V6h2z%22/%3E %3C/g%3E%3C/svg%3E")}.mw-ui-icon-minerva-issue-generic-highColor:before{background-image:url(/w/load.php?modules=skins.minerva.icons.page.issues.default.color&image=issue-generic&variant=highColor&format=rasterized&skin=minerva&version=6pvbm);background-image:linear-gradient(transparent,transparent),url("data:image/svg+xml,%3Csvg xmlns=%22http://www.w3.org/2000/svg%22 width=%2220%22 height=%2220%22 viewBox=%220 0 20 20%22%3E%3Ctitle%3E alert %3C/title%3E%3Cg fill=%22%23d33%22%3E %3Cpath d=%22M19.64 16.36 11.53 2.3A1.85 1.85 0 0 0 10 1.21 1.85 1.85 0 0 0 8.48 2.3L.36 16.36C-.48 17.81.21 19 1.88 19h16.24c1.67 0 2.36-1.19 1.52-2.64zM11 16H9v-2h2zm0-4H9V6h2z%22/%3E %3C/g%3E%3C/svg%3E")}
.mw-ui-icon-minerva-issue-severity-medium-mediumColor:before{background-image:url(/w/load.php?modules=skins.minerva.icons.page.issues.medium.color&image=issue-severity-medium&format=rasterized&skin=minerva&version=10heb);background-image:linear-gradient(transparent,transparent),url("data:image/svg+xml,%3Csvg xmlns=%22http://www.w3.org/2000/svg%22 width=%2220%22 height=%2220%22 viewBox=%220 0 20 20%22%3E%3Ctitle%3E notice %3C/title%3E %3Cg fill=%22%23ff5d01%22%3E %3Cpath d=%22M10 0a10 10 0 1 0 10 10A10 10 0 0 0 10 0zm1 16H9v-2h2zm0-4H9V4h2z%22/%3E %3C/g%3E%3C/svg %3E")}.mw-ui-icon-minerva-issue-type-point-of-view-mediumColor:before{background-image:url(/w/load.php?modules=skins.minerva.icons.page.issues.medium.color&image=issue-type-point-of-view&format=rasterized&skin=minerva&version=10heb);background-image:linear-gradient(transparent,transparent),url("data:image/svg+xml,%3Csvg xmlns=%22http://www.w3.org/2000/svg%22 width=%2220%22 height=%2220%22 viewBox=%220 0 20 20%22%3E%3Ctitle%3E point of view %3C/title %3E%3Cg fill=%22%23ff5d01%22%3E %3Cpath d=%22m6 8 2-3 2-3H2l2 3zm8 4-2 3-2 3h8l-2-3zm-12.236.329L17.47 5.823l.766 1.848L2.53 14.177z%22/%3E %3C/g%3E%3C/svg%3E")}
.mw-message-box{color:#000;box-sizing:border-box;margin-bottom:16px;border:1px solid;padding:12px 24px;word-wrap:break-word;overflow-wrap:break-word;overflow:hidden;background-color:#eaecf0;border-color:#a2a9b1; }.mw-message-box :only-child{margin:0}.mw-message-box h2{color:inherit;display:block;border:0;font-size:1em;font-weight:bold}.mw-message-box .mw-logevent-loglines li{font-size:90%}.mw-message-box-error{background-color:#fee7e6;border-color:#d33}.mw-message-box-warning{background-color:#fef6e7;border-color:#fc3}.mw-message-box-success{background-color:#d5fdf4;border-color:#14866d}

cite,dfn{font-style:inherit}q{quotes:'"' '"' "'" "'"} .geo-nondefault,.geo-multi-punct, .checkuser-show,.sysop-show,.templateeditor-show,.extendedmover-show,.patroller-show,.extendedconfirmed-show,.autoconfirmed-show, .hide-when-compact, .noprint.portal{display:none} .content .mw-parser-output .infobox-header,.content .mw-parser-output .infobox-subheader,.content .mw-parser-output .infobox-above,.content .mw-parser-output .infobox-title,.content .mw-parser-output .infobox-image,.content .mw-parser-output .infobox-full-data,.content .mw-parser-output .infobox-below{text-align:center} .plainlist ul{list-style:none;padding-left:0; } .mw-parser-output .nowrap,.nowraplinks a{white-space:nowrap}.mw-parser-output .infobox .nowrap{white-space:normal !important} .wrap,.wraplinks a{white-space:normal} span.texhtml{font-family:serif;white-space:nowrap} .flagicon img{min-width:25px} .cnotice{margin-bottom:0 !important} .mbox-text{ padding:0.25em 0.9em} .wikitable.plainrowheaders th[scope=row],.wikitable.plainrowheaders th[scope=rowgroup]{font-weight:normal; text-align:left} .mw-parser-output .hlist ul,.mw-parser-output .hlist ol{padding-left:0} .mw-parser-output .hlist dd,.mw-parser-output .hlist dt{margin-right:0} .mw-parser-output .hlist dd:after{content:" · ";font-weight:bold}.mw-parser-output .hlist dt:after{content:":"} .heading-holder .hlist li:after,.mw-parser-output .hlist dd:last-child:after,.mw-parser-output .hlist dt:last-child:after,.mw-parser-output .hlist li:last-child:after{content:none} .mw-parser-output .hlist dd dd:first-child:before,.mw-parser-output .hlist dd dt:first-child:before,.mw-parser-output .hlist dd li:first-child:before,.mw-parser-output .hlist dt dd:first-child:before,.mw-parser-output .hlist dt dt:first-child:before,.mw-parser-output .hlist dt li:first-child:before,.mw-parser-output .hlist li dd:first-child:before,.mw-parser-output .hlist li dt:first-child:before,.mw-parser-output .hlist li li:first-child:before{content:" (";font-weight:normal} .mw-parser-output .hlist dd dd:last-child:after,.mw-parser-output .hlist dd dt:last-child:after,.mw-parser-output .hlist dd li:last-child:after,.mw-parser-output .hlist dt dd:last-child:after,.mw-parser-output .hlist dt dt:last-child:after,.mw-parser-output .hlist dt li:last-child:after,.mw-parser-output .hlist li dd:last-child:after,.mw-parser-output .hlist li dt:last-child:after,.mw-parser-output .hlist li li:last-child:after{content:") " !important; font-weight:normal;padding-left:0} .mw-parser-output .hlist ol{counter-reset:listitem} .mw-parser-output .hlist ol > li{counter-increment:listitem} .mw-parser-output .hlist ol > li:before{content:" " counter(listitem) " ";white-space:nowrap} .mw-parser-output .hlist dd ol > li:first-child:before,.mw-parser-output .hlist dt ol > li:first-child:before,.mw-parser-output .hlist li ol > li:first-child:before{content:" (" counter(listitem) " "} @media print{.navbox,.hatnote,.ambox{display:none !important}} @-webkit-keyframes centralAuthPPersonalAnimation{0%{opacity:0;-webkit-transform:translateY(-20px)}100%{opacity:1;-webkit-transform:translateY(0)}}@keyframes centralAuthPPersonalAnimation{0%{opacity:0;transform:translateY(-20px)}100%{opacity:1;transform:translateY(0)}}.centralAuthPPersonalAnimation{-webkit-animation-duration:1s;animation-duration:1s;-webkit-animation-fill-mode:both;animation-fill-mode:both;-webkit-animation-name:centralAuthPPersonalAnimation;animation-name:centralAuthPPersonalAnimation} @media print{#centralNotice{display:none}}.cn-closeButton{display:inline-block;background:url(pwA+AAAAElBMVEUAAAAQEBDPz88AAABAQEDv7+9oe1vvAAAABnRSTlMA3rLe3rJ S22KzAAAAREIEQVQI12PAAUIUQCSTK5BwFgIxFU1AhKECUFAYKAAioXwwBeZChM

GCEGGQIFQYJohgIhQgtCEMQ7ECYTHCOciOxA4AADgJTXIb9s8AAAAASUVORK5CYII
=) no-repeat;width:20px;height:20px;text-indent:20px;white-
space:nowrap;overflow:hidden}
.cx-entrypoint-missing-frequent-languages-container{font-size:unset;font-
weight:unset}.cx-entrypoint-missing-frequent-languages{text-
decoration:none;cursor:pointer;display:flex;justify-content:space-between;align-
items:center;font-size:0.85em;font-weight:normal;padding:1em;background-
color:#f8f9fa;color:#54595d}.cx-entrypoint-missing-frequent-languages:link,.cx-
entrypoint-missing-frequent-languages:visited{color:#54595d}.cx-entrypoint-
missing-frequent-languages__text span{font-weight:bold}.cx-entrypoint-missing-
frequent-languages__icon{font-size:0.85em;background:center / contain no-
repeat url(/w/extensions/ContentTranslation/modules/entrypoints/images/arrow-
forward-icon.svg?23584)}</style><style>
.mf-mw-ui-icon-rotate-anti-clockwise:before{transform:rotate(-90deg)}.mf-mw-
ui-icon-rotate-clockwise:before{transform:rotate(90deg)}.mf-mw-ui-icon-rotate-
flip:before{transform:scaleY(-1)}.rtl .mf-mw-ui-icon-rotate-anti-
clockwise:before{transform:rotate(90deg)}.rtl .mf-mw-ui-icon-rotate-
clockwise:before{transform:rotate(-90deg)} .panel > p{padding:1em}.panel
input,.panel textarea{border-radius:0;padding:16px 1em}.mw-body
> .content .panel{background-color:#eaecf0;clear:both;margin-top:1em;text-
align:center}.promised-
view{position:absolute;top:0;left:0;right:0;bottom:0;display:flex;justify-
content:center;align-items:center}.overlay-content .loading.spinner,.media-
viewer .loading.spinner,.content .loading.spinner{text-align:center;background-
position:50%;margin:8px auto}.drawer{text-align:center;padding-top:0;padding-
bottom:1em;max-width:500px;margin:0 auto}.drawer.text{font-size:0.9em;text-
align:left;padding-top:0.5em}.drawer p{margin-top:0.5em}.drawer p,.drawer
a:not(:last-child),.drawer .mw-ui-button{margin-bottom:1em}.has-drawer--with-
scroll-locked{overflow:hidden}.overlay-enabled .drawer{display:none !
important}.drawer-
container__mask{position:fixed;bottom:0;left:0;right:0;background:rgba(0,0,0,0.
8);transition:opacity 100ms ease-in-out;opacity:0}.drawer-container__mask--
visible{top:0;opacity:0.2}.overlay.overlay-loading{display:flex;align-
items:center;justify-content:center;background-
color:rgba(255,255,255,0.5)}.overlay.overlay-
loading .header{display:none}.overlay.overlay-loading .overlay-
content{overflow:hidden} .overlay-enabled #mw-mf-page-
center{overflow:hidden;display:block}.overlay-enabled .overlay,.overlay-enabled
#mw-mf-page-center{height:100%}.hidden{display:none !
important}.overlay{position:absolute;top:0;left:0;width:100%;background:#fff;z-
index:1;display:none}.overlay.visible{display:block}.overlay input,.overlay
textarea{font-size:16px}.overlay .captcha-word,.overlay .summary{margin:0 0
0.7em;width:100%}.overlay .wikitext-editor{min-height:50%;line-
height:1.5;border:0}.overlay .panel{padding-top:12px;padding-
bottom:12px;border-bottom:1px solid #eaecf0}.overlay-header .overlay-
title{width:100%}.overlay-header .header-action a[disabled],.overlay-
header .header-action button[disabled]{opacity:0.5}.overlay-header .header-
action a:focus,.overlay-header .header-action button:focus{outline:0}.overlay-
header .header-action .continue,.overlay-header .header-action .submit,.overlay-
header .header-action .progressive{background-
color:#3366cc;color:#ffffff;width:auto}.overlay-header .header-
action .continue:not(.mw-ui-icon-element),.overlay-header .header-
action .submit:not(.mw-ui-icon-element),.overlay-header .header-
action .progressive:not(.mw-ui-icon-element){padding:0 1.2em}.overlay-

header .header-action .continue[disabled],.overlay-header .header-action .submit[disabled],.overlay-header .header-action .progressive[disabled]{background-color:#c8ccd1;opacity:1}.overlay-header .header-action .oo-ui-widget{margin-right:1em}.overlay-header button{cursor:pointer}.overlay-header .submit{background-color:#3366cc;color:#ffffff}.overlay-header h2{display:table;width:100%;font-size:1em}.overlay-header h2 > *{width:1em;display:table-cell;padding-right:0.4em}.overlay-header h2 span{width:auto;max-width:1em}.overlay-header > ul li{display:block}.overlay-header-container,.overlay-footer-container{width:100%;background:#ffffff;z-index:2}.overlay-header-container.position-fixed,.overlay-footer-container.position-fixed{position:fixed;left:0;right:0}.overlay-header-container{top:0}.overlay-footer-container{background-color:#ffffff;bottom:0;border-top:1px solid #c8ccd1}.overlay-footer-container a{display:block;padding:1em 1em 1em 10px;line-height:1em;text-align:center}.overlay-bottom{border-top:1px solid #c8ccd1;top:auto;bottom:0;height:auto !important;background:#f8f9fa}.overlay-bottom .overlay-header-container{background:#f8f9fa}@media all and (min-width:720px){.overlay .panel{padding-top:12px;padding-bottom:12px}}.client-js .collapsible-heading{cursor:pointer}@media print{.collapsible-heading .indicator,.collapsible-heading .edit-page{display:none}.client-js .collapsible-block{display:block}}.language-overlay,.language-info-overlay{background-color:#eaecf0}.language-overlay .overlay-content,.language-info-overlay .overlay-content{background-color:#eaecf0;position:relative;min-height:100%}.drawer.references-drawer{background-color:#000000;color:#c8ccd1;max-height:50%;overflow-y:auto;padding:10px 20px 20px 20px}.drawer.references-drawer .mw-ui-icon:before{opacity:0.5}.drawer.references-drawer a{color:#69f}.drawer.references-drawer .references-drawer__header{display:flex;align-items:center;padding-bottom:20px}.drawer.references-drawer .references-drawer__title{color:#72777d;cursor:default;letter-spacing:0.2em;font-size:0.75em;text-transform:uppercase;margin-left:1em;flex-grow:1}@media all and (min-width:720px){.drawer.references-drawer{max-height:400px}}.search-results-view > div{height:100%}.search-results-view .search-content{display:flex;align-items:center}@media all and (max-width:720px){.search-results-view .search-content{padding-left:15px}}.overlay.search-overlay{background:#fff}.overlay.search-overlay .spinner-container{background-color:#ffffff;bottom:0;display:none;left:0;opacity:0.7;right:0;z-index:2}.overlay.search-overlay .spinner-container .spinner{display:block;left:50%;margin-left:-1.75em;position:absolute;top:10%}.overlay.search-overlay .search-box{display:block}.overlay.search-overlay .results,.overlay.search-overlay .search-feedback{background-color:#fff}.overlay.search-overlay .overlay-header{background-color:transparent}.overlay.search-overlay .header-cancel{display:none}.overlay.search-overlay .header-action{width:auto}.overlay.search-overlay .overlay-title{position:relative;padding-left:15px}.overlay.search-overlay .header input{padding-right:3em}.overlay.search-overlay .header input::-ms-clear{display:none}.overlay.search-overlay .overlay-content{position:relative;height:100%;width:100%;box-sizing:border-box}.overlay.search-overlay .search-content{border-bottom:1px solid #c8ccd1;cursor:pointer}.overlay.search-overlay .search-

content .caption{padding:1em 0}.overlay.search-overlay .results{box-shadow:0 3px 3px 0 rgba(117,117,117,0.3)}.overlay.search-overlay .results li:last-child{border-bottom:0}.overlay.search-overlay .results h2{font:inherit}.overlay.search-overlay li.page-summary{display:table;height:70px;width:100%}.overlay.search-overlay li.page-summary .title{display:table-cell;vertical-align:middle}.overlay.search-overlay li.page-summary h3{margin:0;font-weight:normal}.overlay.search-overlay li.page-summary h3 strong{text-decoration:none}.overlay.search-overlay li.page-summary .wikidata-description{font-size:13px;margin-top:9px}.overlay.search-overlay .search-feedback{box-shadow:0 3px 3px 0 rgba(117,117,117,0.3);border-top:1px solid #c8ccd1;font-size:0.8em;padding:0.5em 1em}.overlay.search-overlay.no-results .search-feedback{border-top:0}.overlay.search-overlay.visible{animation:fadeIn 0.5s}.overlay.search-overlay.overlay-ios{animation:none}@keyframes fadeIn{from{opacity:0}to{opacity:1}}@keyframes fadeOut{from{opacity:1}to{opacity:0}}.watch-this-article:before{transition:transform 0.5s}.watch-this-article.watched:before{transform:rotate(72deg)}.overlay.media-viewer{background:#000;padding-top:0}.overlay.media-viewer .overlay-content{height:100%;width:100%;margin:0;max-width:none}.overlay.media-viewer .header-container{background:transparent;border-bottom:0}.overlay.media-viewer .main{height:100%;position:relative;width:100%}.overlay.media-viewer .cancel{position:absolute;right:0;top:10px;z-index:2}.amc-outreach-image{height:90px;background-repeat:no-repeat;background-position:center;background-size:contain;margin-bottom:1em}.position-fixed{position:fixed !important}.touch-events :focus{outline:0} .drawer{background-color:#f8f9fa;position:absolute}.mw-notification,.toast,.drawer{box-sizing:border-box;position:fixed;bottom:0;left:0;right:0;box-shadow:0 -1px 8px 0 rgba(0,0,0,0.35);word-wrap:break-word;z-index:4;display:none}.mw-notification.visible,.toast.visible,.drawer.visible,.mw-notification.mw-notification-visible,.toast.mw-notification-visible,.drawer.mw-notification-visible{display:block}.mw-notification,.toast{font-size:0.875rem;padding:0.9em 1em;background-color:#202122;color:#fff;margin:0 10% 20px;width:80%;text-align:center;border-radius:2px}.mw-notification.mw-notification-type-error,.toast.mw-notification-type-error{background-size:24px;background-position:16px 50%;background-repeat:no-repeat;padding-left:5%;width:75%;border:0}.mw-notification a,.toast a{color:#ffffff;text-decoration:underline}.mw-notification-area{z-index:4;position:fixed;bottom:0;width:100%}.mw-notification,.drawer{display:block;visibility:hidden; transform:translate(0,100px);bottom:0;opacity:0;transition:transform 250ms,opacity 250ms,visibility 250ms}.mw-notification.visible,.drawer.visible,.mw-notification.mw-notification-visible,.drawer.mw-notification-visible{visibility:visible;opacity:1;transform:translate(0,0)}.overlay textarea{box-sizing:border-box;width:100%;padding:10px 16px 10px 16px;resize:none}.overlay .header-cancel{padding-left:4px}.overlay .license{font-size:0.875rem;color:#72777d;margin-top:0.5em;line-height:1.4}.overlay-header-container{padding:0}.overlay-header{height:3em}.header-chrome .overlay-header{height:3.375em}.overlay-header .mw-ui-anchor,.overlay-header .mw-ui-button:not(.mw-ui-icon) {height:3em}.header-chrome .overlay-header .mw-ui-anchor,.header-

chrome .overlay-header .mw-ui-button:not(.mw-ui-icon) {height:3.375em}.overlay-header .overlay-title{padding:0.15em 0}.overlay-header .overlay-title:last-child{padding-right:1em}.overlay-header-container + .overlay-content{padding-top:3em}.header-chrome.overlay-header-container + .overlay-content{padding-top:3.375em}@media all and (min-width:1000px) {.overlay-header{max-width:995.3px}}.client-js .collapsible-heading,.client-js .collapsible-block{clear:left}.client-js .collapsible-heading{position:relative}.overlay.search-overlay .spinner-container{top:3.375em}.overlay.search-overlay .clear{background:none;position:absolute;top:50%;right:0;transform:translateY(-50%)}.overlay.search-overlay .search-box{position:relative}@media all and (min-width:720px){.overlay.search-overlay .search-box,.overlay.search-overlay .search-content,.overlay.search-overlay .spinner-container,.overlay.search-overlay .results{width:23.4375em;margin-left:12.1875em}.overlay.search-overlay .overlay-header-container,.overlay.search-overlay .overlay-content{padding-left:16px;padding-right:16px;box-sizing:border-box}.overlay.search-overlay .overlay-title{width:auto;padding-left:0}.overlay.search-overlay .overlay-content{width:100%;max-width:none}.overlay.search-overlay .spinner-container{left:auto;right:auto}}@media screen and (min-width:1000px) {.overlay.search-overlay .search-results-view{margin-left:auto;margin-right:auto;width:90%;max-width:993.3px}}@media screen and (min-width:1000px){.language-overlay .overlay-content{margin:0;min-width:100%}}</style><style> .panel-inline{display:none}.panel-inline.visible{display:block} .mf-font-size-small .mw-body p,.mf-font-size-small .content p{font-size:90%}.mf-font-size-large .mw-body p,.mf-font-size-large .content p{font-size:120%}.mf-font-size-x-large .content p,.mf-font-size-x-large .mw-body p{font-size:140%}.lazy-image-placeholder--tap:before{content:'Tap to display image.';color:#72777d;text-align:center;font-size:0.75em;display:block;padding-top:20px}.ve-mobile-fakeToolbar-container{position:fixed;z-index:2;left:0;right:0;top:0;height:3em;background:#fff;border-bottom:1px solid #c8ccd1;box-shadow:0 1px 1px rgba(0,0,0,0.1)}.ve-mobile-fakeToolbar-header{height:3em}.ve-mobile-fakeToolbar{height:3em;display:block !important;width:100% !important;box-sizing:content-box;border-color:#c8ccd1;border-style:solid;border-width:0 1px;margin:0 -1px}.ve-mobile-fakeToolbar .cancel,.ve-mobile-fakeToolbar .mw-ui-icon-mf-spinner{display:inline-block;width:3em;height:3em;box-sizing:border-box !important;margin-left:0 !important}.ve-mobile-fakeToolbar .cancel:before,.ve-mobile-fakeToolbar .mw-ui-icon-mf-spinner:before{background-size:20px 20px}.ve-mobile-fakeToolbar .cancel{padding:0;color:transparent}.ve-mobile-fakeToolbar .cancel:hover{background-color:#eaecf0}.ve-mobile-fakeToolbar .mw-ui-icon-mf-spinner{vertical-align:top;border-left:1px solid #eaecf0;cursor:auto;padding:0 0.875em;width:calc(100vw - 3em);max-width:500px;overflow:hidden;text-overflow:ellipsis}.ve-mobile-fakeToolbar .mw-ui-icon-mf-spinner:before{margin-right:0.3em}.ve-loading .content .section-heading .indicator{transition:width 400ms 100ms,min-width 400ms 100ms,padding 400ms 100ms,opacity 400ms 100ms;flex-basis:0;min-width:0;padding-right:0;opacity:0}.ve-loading .mw-editsection{transition:opacity 400ms 100ms;opacity:0}.ve-loading .page-actions-menu{transition:border-bottom-color 400ms 100ms;border-bottom-color:transparent}.ve-loading .mw-body{transition:padding-bottom 400ms 100ms,margin-bottom 400ms 100ms,transform 400ms 100ms}.toolbar-hidden{transform:translateY(-

100%)}.toolbar-shown{transition:transform 250ms ease;transform:translateY(0);opacity:1}.toolbar-shown-done{ transform:none}
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		<li class="">
		
		Random
		
		
		<li class="jsonly">
		
		Nearby
		
		
	
	<ul id="p-personal">
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		Log in
		
		
	
	<ul id="pt-preferences">
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wikipedia.org&amp;uselang=en&amp;utm_key=minerva" class="menu__item--
donate" data-mw="interface" data-event-name="menu.donate">
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                            </a>
                        </li>
        </ul>
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                            </a>
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                        </li>
        </ul>
</div>

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src="/static/images/mobile/copyright/wikipedia-wordmark-en.svg"
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</span>

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```
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readonly="">
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mw-ui-icon-with-label-desktop mw-ui-button mw-ui-quiet  language-selector"
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title="Language">Language</a>
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```

```
                </li>
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the lead section of this page">Edit</a>
                </li>
        </ul>
</nav>
<!-- version 1.0.2 (change every time you update a partial) -->

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{var block=document.getElementById("mf-section-"+id);block.className+="
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elt+link+.ambox,.mw-parser-output .ambox+.mw-empty-
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span{margin-left:23px!important}@media(min-width:720px){.mw-parser-output
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metadata ambox ambox-style ambox-More_footnotes"
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class="ambox-learn-more">Learn more</span><div class="mw-ui-icon mw-ui-
```

icon-element mw-ui-icon-minerva-issue-severity-low-lowColor mw-ui-icon-flush-top mw-ui-button mw-ui-quiet mw-ui-icon-small"> This article includes a list of general references, but it lacks sufficient corresponding inline citations. Please help to improve this article by introducing more precise citations. (July 2018) (<small>Learn how and when to remove this template message</small>) </td></tr></tbody></table> ROM hacking is the process of modifying a ROM image or ROM file of a video game to alter the game's graphics, dialogue, levels, gameplay, and/or other elements. This is usually done by technically inclined video game fans to improve an old game of importance, as a creative outlet, or to make new, unofficial games using the old game's engine. ROM hacks either re-design a game for new, fun gameplay while keeping all items the same, or unlock features that exist in the game but are not utilised in-game.
ROM hacking is generally accomplished through use of a hex editor (a program for editing non-textual data) and various specialized tools such as tile editors, and game-specific tools which are generally used for editing levels, items, and the like, although more advanced tools such as assemblers and debuggers are occasionally used. Once ready, they are usually distributed on the Internet for others to play on an emulator or games console.^{[1]} Fan translation (known as "translation hacking" within the ROM hacking community) is a type of ROM hacking; there are also anti-censorship hacks that exist to restore a game to its original state, which is often seen with older games that were imported, as publishers' content policies for video games (most notably, Nintendo's) were much stricter in the United States than Japan or Europe; there are also randomisers which shuffle entity placements.^{[2]} Although much of the method applies to both types of hacking, this article focuses on "creative hacking" such as editing game levels.

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<li class="toclevel-1 tocsection-1">1 Communities
<li class="toclevel-1 tocsection-2">2 Methods
<li class="toclevel-2 tocsection-3">2.1 Hex editing
<li class="toclevel-2 tocsection-4">2.2 Graphics editing
<li class="toclevel-2 tocsection-5">2.3 Palette editing
<li class="toclevel-2 tocsection-6">2.4 Level editing
<li class="toclevel-2 tocsection-7">2.5 Data editing
<li class="toclevel-2 tocsection-8">2.6 Assembly hacking
<li class="toclevel-2 tocsection-9">2.7 Music hacking
<li class="toclevel-2 tocsection-10">2.8 ROM expansion

<li class="toclevel-1 tocsection-11">3 Distribution
<li class="toclevel-1 tocsection-12">4 Usage
<li class="toclevel-1 tocsection-13">5 Systems and games
<li class="toclevel-1 tocsection-14">6 See also
<li class="toclevel-1 tocsection-15">7 References

</section><h2 class="section-heading collapsible-heading"><div class="mw-ui-icon mw-ui-icon-mf-expand indicator mw-ui-icon-flush-left mw-ui-icon-small "></div>CommunitiesEdit</h2><section class="mf-section-1 collapsible-block" id="content-collapsible-block-0">
<p>Most hacking groups offer web space for hosting hacks and screenshots (sometimes only hosting hacks by the group's members, sometimes hosting almost any hack), a message board, and often have an IRC channel.
</p>
</section><h2 class="section-heading collapsible-heading"><div class="mw-ui-icon mw-ui-icon-mf-expand indicator mw-ui-icon-flush-left mw-ui-icon-small "></div>MethodsEdit</h2><section class="mf-section-2 collapsible-block" id="content-collapsible-block-1">
<p>Having been created by many different programmers or programming teams, ROM data can be very diverse.
</p>
<h3 class="in-block">Hex editingEdit</h3>
<p>A hex editor is one of the most fundamental tools in any ROM hacker's repertoire. Hex editors are usually used for editing text, and for editing other data for which the structure is known (for example, item properties), and Assembly hacking.
</p><p>Editing text is one of the most basic forms of hacking. Many games do not store their text in ASCII form, and because of this, some specialized hex editors have been developed, which can be told what byte values correspond to what letter(s) of the alphabet, to facilitate text editing; a file that defines these byte=letter relationships is called a "table" file. Other games use simple text compression techniques (such as byte pair encoding, also called dual tile encoding or DTE, in which certain combinations of two or more letters are encoded as one byte) which a suitably equipped hex editor can facilitate editing.
</p><p>A hex editor is the tool of choice for editing things such as character/item properties, if the structure and location of this data is known and there is no game-specific editor for the game that can edit this information.

Some intrepid hackers also perform level editing with a hex editor, but this is extremely difficult (except on games whose level storage format closely resembles how it is presented in a hex editor).

<h3 class="in-block">Graphics editingEdit</h3>
Another basic hacking skill is graphics hacking, which is changing the appearance of the game's environments, characters, fonts, or other such things. The format of graphics data varies from console to console, but most of the early ones (NES, Super NES, Game Boy, etc.) store graphics in tiles, which are 8x8-pixel units of data, which are arranged on-screen to produce the desired result. Editing these tiles is also possible with a hex editor, but is generally accomplished with a tile editor (such as Tile Layer or Tile Molester), which can display the ROM data in a graphical way, as well as finding and editing tiles.
Graphics hacks can range from simple edits (such as giving Luigi a golf club, or making pixelated sprites for later generation Pokémon) to "porting" characters from one game to another, to full-blown thematic changes (usually with accompanying palette changes; see below).
More sophisticated graphics hacking involves changing more than just tiles and colors, but also the way in which the tiles are arranged, or tile groups generated, giving more flexibility and control over the final appearance. This is accomplished through hex editing or a specialized tool (either for the specific game or a specific system). A good example of a graphics hack is the uncompleted Pokémon Torzach, a hack which attempted to add a whole new generation of Pokémon and tiles to the game. The hack has since been discontinued, but it still serves as a good example on what can be achieved with the tools available.

<h3 class="in-block">Palette editingEdit</h3>
Another common form of hacking is palette hacking, where color values are modified to change the colors a player sees in the game (this often goes hand-in-hand with graphics hacking); Palette values are commonly stored in Hex. This is fairly easy for NES games, the graphics of which use a pre-defined set of colors among which a game selects; palette hacking in this case entails changing which of those colors are selected. The matter is slightly more complicated with <a

href="/wiki/Super_Nintendo_Entertainment_System" title="Super Nintendo Entertainment System">Super NES, Mega Drive games or games for other systems, which store absolute RGB color values. Palette editors are usually simple and often are with Level editors, or Game specific graphics editors.

<h3 class="in-block">Level editingEdit</h3>
One of the most popular forms of ROM hacking, level editing entails modifying or redesigning a game's levels or maps. This is almost exclusively done with an editor specially tailored for a particular game (called a level editor). Level edits can be done to make the game more challenging, to alter the flow of the game's plot, or just to give something new to an old game. Combined with extensive graphics hacking, the game can take on a very different look and feel.

<h3 class="in-block">Data editingEdit</h3>
A core component of many hacks (especially of role-playing video games) is editing data such as character, item, and enemy properties. This is usually done either "by hand" (with a hex editor) if the location and structure of the data is known, or with a game-specific editor that has this functionality. Through this, a hacker can alter how weapons work, how strong enemies are or how they act, etc. This can be done to make the game easier or harder, or to create new scenarios for the player to face.

<h3 class="in-block">Assembly hackingEdit</h3>
The most powerful, and arguably the most difficult, hacking technique is editing the game's actual code, a process called ASM hacking ("ASM" means "assembly", referring to the low level programming language that gets executed by the CPU).^{[1]} There is no set pattern for ASM hacking, as the code varies widely from game to game, but most skilled ASM hackers either use an emulator equipped with a built-in debugger or tracer, or run the ROM through a <a

href="/wiki/Disassembler" title="Disassembler">disassembler, then analyze the code and modify it using a hex editor or assembler according to their needs. While quite challenging compared to the relatively simple methods listed above, anything is possible with ASM hacking (of course, within the limits of the hardware/software of the gaming platform), ranging from altering enemy AI to changing how graphics are generated. (Of course, the possibilities are still limited by the hacker's ability to comprehend and modify the existing code.)
If the developers used a typed language, the hacker may be able to compile their own code for the game in the same language if they have access to a proper compiler. One such example would be using C to hack Nintendo 64 games, since MIPS-GCC can compile code for the Nintendo 64.^{[3]}^{[4]}
<h3 class="in-block">Music hackingEdit</h3>
Music hacks are relatively rare, due to the wide variety of ways games store music data (hence the difficulty in locating and modifying this data) and the difficulties in composing new music (or porting music from another game). As music cracking is very uncommon, many hacks do not have any ported/composed music added in. However, as many Game Boy Advance games use the M4A Engine (also called "Sappy Driver") for music, the program SapTapper can be used to hack Game Boy Advance music data. Various other utilities were created to work with the engine such as Sappy 2006.
Another instance of the same engine being used between games is on the Nintendo 64, in which most games use the same format; although they use different sound banks. A utility known as the N64 Midi Tool was created to edit the sequences that the majority of Nintendo 64 games use, though it does not cover the first-party N64 titles that use a slightly different engine, such as Super Mario 64.
Several^{[5]} Mega Drive games use a sound engine unofficially known as "SMPS",^{[6]} which has been researched for decades by many hackers.^{[7]} As of today, various^{[8]} tools exist to alter

the music of games which use the SMPS engine (Sonic the Hedgehog games in particular), and many of them made their way to the Steam Workshop.^{[9]}
<h3 class="in-block">ROM expansionEdit</h3>
Generally speaking, a ROM hacker cannot normally add content to a game, but merely change existing content. This limit can be overcome through ROM expansion, whereby the total size of the ROM image is increased, making room for more content and, in turn, a larger game. The difficulty in doing this varies depending on the system for which the game was made. For example, expanding an NES ROM may be difficult or even impossible due to the mapper used by the game. For example, if a mapper allows 16 ROM banks and all of them are used, expanding the ROM further is impossible without somehow converting the game to another mapper, which could be easy or extremely difficult. On the other hand, expanding a SNES game is (relatively) straightforward. To utilize the added space, parts of the game code have to be modified or re-written (see Assembly hacking above) so the game knows where to look. Another type of ROM expansion that is fairly easy is Game Boy Advance ROMs. The ROMs themselves are generally small, but the memory space available sometimes exceeds it by multiples of up to 17.

</section><h2 class="section-heading collapsible-heading"> DistributionEdit</h2><section class="mf-section-3 collapsible-block" id="content-collapsible-block-2">
Once a hack is completed (or an incomplete version is deemed suitable for an interim release) it is released onto the Internet for others to play. The generally accepted way to do this is by making an unofficial patch (in IPS format or others) that can be applied to the unmodified ROM.^{[1]} This, and usually some form of documentation, is put in an archive file and uploaded somewhere. IPS is a format for recording the differences between two binary files (in this case, between the unmodified and hacked ROMs) and is suitable for ROM hacks.^{[10]} IPS is still used today for small patches—however, as ROMs became larger in size, this format became useless, leading to quite a few file formats being created—such

as NINJA and PPF ("PlayStation Patch Format"). PPF is still used today, particularly to patch large files such as ISO CD images and Nintendo 64 games. A new patch format, UPS, has also been developed by the ROM hacking community, designed to be the successor to IPS and PPF.^{[11]}
A more recent patching format, the APS patching system, has also been developed by a devoted Game Boy Advance ROM hacker.^{[12]} The APS system is more space efficient, is reversible, and is faster than its predecessor.^{[13]} The purpose of distributing a hack in patch form is to avoid the legal aspects of distributing entire ROM images; the patch records only what has changed in the ROM, hence distributing it does not usually distribute parts of the original game. A patch is also normally drastically smaller than the full ROM image (an NES ROM can run anywhere from 8 KB to 2 MB; a Super NES ROM can run from 256 kB to 6 MB).
In a novel example of legal distribution, Sega released a Steam-based virtual hub for its previous collection of Mega Drive/Genesis games, entitled Sega Mega Drive Classics Hub. The Hub, besides allowing players to play emulated versions of these older games, takes advantage of Steam's support for user-created content through the Steam Workshop, officially allowing the distribution of ROM hacks of any of the offered games.^{[14]}
</section><h2 class="section-heading collapsible-heading"> UsageEdit</h2><section class="mf-section-4 collapsible-block" id="content-collapsible-block-3">
Patched ROMs are often played on emulators, however it is also possible to play patched ROMs on the original hardware.^{[15]} The destination cartridge could be the original cartridge from which the initial unpatched ROM was pulled, or another compatible cartridge of the same type. This is particularly popular for fan translations, homebrew games, prototypes, or other games for which original cartridges were never produced, or for games which require exact timing or other elements of the original hardware which are not available in emulators.

</section><h2 class="section-heading collapsible-heading"> <span class="mw-headline" id="Systems_and_games" tabindex="0" role="button" aria-controls="content-collapsible-block-4" aria-

expanded="false">Systems and gamesEdit</h2><section class="mf-section-5 collapsible-block" id="content-collapsible-block-4">
The majority of ROM hacking is done on NES, SNES and Sega Genesis games, since such games are small and simple compared to games of more advanced consoles such as the Nintendo 64 or Nintendo DS. Games for the Game Boy, Game Boy Color and Game Boy Advance are also popular for hacking, as well as games for the PlayStation to a lesser extent. However, games intended for more recent consoles are not exempt from hacking, as computers have become faster and more programs and utilities have been written, more PlayStation, Nintendo 64 and Nintendo DS hacks have emerged.
Of these, popular games to play are popular games to hack; many hacks have been released of games of the Sonic the Hedgehog series, Super Mario series (including Mario Bros., Super Mario Bros., Super Mario Bros. 2, Super Mario Bros. 3, Super Mario Land, Super Mario Land 2: 6 Golden Coins, Super Mario 64 and Super Mario World), Mario Kart series (most notably Super Mario Kart, Mario Kart Wii, Mario Kart 7, and Mario Kart DS), Pokémon series, Chip's Challenge, Castlevania, Final Fantasy, <a href="/wiki/The_Legend_of_Zelda_(video_game)" title="The Legend of Zelda

(video game)">The Legend of Zelda, games from the <a
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(franchise)">Mega Man series, <a href="/wiki/Fire_Emblem"
title="Fire Emblem">Fire Emblem series, <a
href="/wiki/EarthBound" title="EarthBound">EarthBound, <a
href="/wiki/Super_Metroid" title="Super Metroid">Super Metroid, and
many others.
A notable hacked arcade game was <a
href="/wiki/Street_Fighter_II:_Rainbow_Edition" title="Street Fighter II: Rainbow
Edition">Street Fighter II: Rainbow Edition, which featured increased
game speed and new special moves. The success of this game prompted
Capcom to release <a href="/wiki/Street_Fighter_II:_Hyper_Fighting"
class="mw-redirect" title="Street Fighter II: Hyper Fighting">Street Fighter II:
Hyper Fighting as an official response.
Your
Sinclair magazine published a monthly column called "Program
Pitstop". This focused mainly on <a href="/wiki/Cheating_in_video_games"
title="Cheating in video games">cheat hacks for games, but also featured
both a level map printer<sup id="cite_ref-16" class="reference"><a
href="#cite_note-16">[16]</sup> for the original <a
href="/wiki/Gauntlet_(1985_video_game)" title="Gauntlet (1985 video
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class="reference">[17]</sup> for the same
game.

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<li id="cite_note-6">^ <link rel="mw-deduplicated-inline-style" href="mw-data:TemplateStyles:r1067248974"><cite class="citation web cs1">"SMPS - Sega Retro". segaretro.org. 23 January 2019.</cite><span title="ctx_ver=Z39.88-2004&rft_val_fmt=info%3Aofi%2Ffmt%3Akev%3Amtx%3Ajournal&rft.genre=unknown&rft.jtitle=segaretro.org&rft.atitle=SMPS+-+Sega+Retro&rft.date=2019-01-23&rft_id=http%3A%2F%2Fsegaretro.org%2FSMPS&rfr_id=info%3Asid%2Fen.wikipedia.org%3AROM+hacking" class="Z3988">

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Last edited 24 days ago by Luxtaythe2nd

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background nav--fullwidth-border nav--is-wide-format" aria-label="API Reference"> <!----> <button data-v-5836c190="" data-v-3b7b98ba="" aria-label="Open documentation navigator" class="sidenav-toggle"><svg data-v-7f60a732="" data-v-5836c190="" aria-hidden="true" xmlns="http://www.w3.org/2000/svg" class="svg-icon sidenav-icon icon-inline sidenav-icon" viewBox="0 0 14 14" height="14" data-v-3b7b98ba=""><path data-v-7f60a732="" d="M11.632 11.991c0.577 0 1.010-0.143 1.299-0.43 0.287-0.286 0.432-0.713 0.432-1.278v-6.562c0-0.565-0.145-0.991-0.433-1.28s-0.721-0.433-1.298-0.433h-9.264c-0.569 0-1 0.144-1.292 0.43s-0.439 0.714-0.439 1.283v6.562c0 0.569 0.147 0.996 0.439 1.28s0.723 0.427 1.292 0.427h9.264zM4.837 11.030h-2.43c-0.258 0-0.455-0.068-0.591-0.205s-0.206-0.34-0.206-0.609v-6.425c0-0.269 0.068-0.472 0.205-0.609s0.335-0.205 0.592-0.205h2.43v8.053zM11.593 11.030h-5.828v-8.053h5.827c0.258 0 0.458 0.068 0.598 0.205s0.211 0.34 0.211 0.609v6.425c0 0.27-0.070 0.473-0.211 0.609s-0.339 0.205-0.597 0.205zM3.791 4.963c0.091 0 0.168-0.033 0.233-0.1 0.060-0.057 0.097-0.138 0.097-0.228s-0.037-0.17-0.097-0.228l-0-0c-0.058-0.058-0.139-0.094-0.228-0.094-0.002 0-0.004 0-0.005 0h-1.132c-0.001-0-0.002-0-0.003-0-0.088 0-0.168 0.036-0.225 0.094l-0 0c-0.060 0.057-0.097 0.138-0.097 0.228s0.037 0.17 0.097 0.228l0 0c0.064 0.067 0.14 0.1 0.227 0.1h1.132zM3.791 6.379c0.091 0 0.168-0.032 0.233-0.097 0.060-0.057 0.098-0.137 0.098-0.226s-0.037-0.17-0.098-0.226l-0-0c-0.058-0.058-0.139-0.094-0.228-0.094-0.002 0-0.004 0-0.005 0h-1.132c-0.001-0-0.002-0-0.003-0-0.088 0-0.168 0.036-0.225 0.094l-0 0c-0.060 0.057-0.097 0.137-0.097 0.226s0.037 0.169 0.097 0.226l0 0c0.057 0.060 0.137 0.097 0.226 0.097 0 0 0.001 0 0.001 0h1.132zM3.791 7.796c0.091 0 0.168-0.032 0.233-0.097 0.059-0.056 0.096-0.135 0.097-0.222v-0c0-0.002 0-0.004 0-0.007 0-0.088-0.037-0.168-0.096-0.224l-0-0c-0.058-0.058-0.139-0.094-0.228-0.094-0.002 0-0.004 0-0.005 0h-1.132c-0.001-0-0.002-0-0.003-0-0.088 0-0.168 0.036-0.225 0.094l-0 0c-0.060 0.056-0.097 0.136-0.097 0.224 0 0.002 0 0.005 0 0.007l-0-0c0 0.083 0.032 0.158 0.097 0.222 0.057 0.060 0.137 0.097 0.225 0.097 0.001 0 0.001 0 0.002-0h1.132z"></path></svg></button> <a data-v-5836c190="" href="/documentation/technologies" class="nav-title-link" data-v-3b7b98ba=""> Documentation <a data-v-3b7b98ba="" href="#" role="button" class="nav-ax-toggle">Open Menu <ul data-v-3acd447b="" data-v-0d4c1e86="" data-v-5836c190="" data-previous-menu-children-count="0" class="nav-menu-items hierarchy" aria-label="Breadcrumbs" data-v-3b7b98ba=""><!----><li data-v-c1dad078="" data-v-0d4c1e86="" class="nav-menu-item hierarchy-item nav-menu-item--animated collapsed" data-v-eb8f9ef0="" data-v-3acd447b="">/<a data-v-0d4c1e86="" href="/documentation/xcode" class="parent item nav-menu-link router-link-active" data-v-eb8f9ef0="" data-v-c1dad078=""> Xcode <li data-v-3552545c="" data-v-0d4c1e86="" class="hierarchy-collapsed-items" data-v-3acd447b="">/<button data-v-3552545c="" class="toggle"><svg data-v-7f60a732="" data-v-3552545c="" aria-hidden="true" xmlns="http://www.w3.org/2000/svg" class="svg-icon ellipsis-icon icon-inline toggle-icon" viewBox="0 0 14 14"><path data-v-7f60a732="" d="m2.64648438 8.171875c.66210937 0 1.18945312-.52148438

1.18945312-1.171875s-.52734375-1.171875-1.18945312-1.171875c-.64453126
0-1.171875.52148438-1.171875 1.171875s.52734374 1.171875 1.171875
1.171875zm4.35351562 0c.65039062 0 1.171875-.52148438 1.171875-
1.171875s-.52148438-1.171875-1.171875-1.171875c-.64453125 0-
1.16601562.52148438-1.16601562 1.171875s.52148437 1.171875 1.16601562
1.171875zm4.3535156 0c.6503906 0 1.171875-.52148438 1.171875-
1.171875s-.5214844-1.171875-1.171875-1.171875c-.6621094 0-
1.1835937.52148438-1.1835937 1.171875s.5214843 1.171875 1.1835937
1.171875z"></path></svg></button><ul data-v-3552545c=""
class="dropdown collapsed"><li data-v-3552545c="" class="dropdown-
item"><a data-v-3552545c="" href="/documentation/xcode" class="nav-menu-
link router-link-active">Xcode
<li data-v-c1dad078="" data-
v-0d4c1e86="" class="nav-menu-item hierarchy-item nav-menu-item--
animated" data-v-eb8f9ef0="" data-v-3acd447b=""><span data-v-eb8f9ef0=""
data-v-c1dad078="" class="hierarchy-item-icon icon-inline">/<span
data-v-eb8f9ef0="" data-v-c1dad078="" class="current item"> Diagnosing
Issues Using Crash Reports and Device Logs <ul data-v-
3acd447b="" data-v-5836c190="" data-previous-menu-children-count="2"
class="nav-menu-items nav-menu-settings" data-v-3b7b98ba=""><!----><!----
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menu-item nav-menu-setting nav-menu-item--animated" data-v-
3acd447b=""><label data-v-1ca2752b="" data-v-c1dad078="" for="version-
label" class="nav-menu-setting-label"> API Changes: </label><span data-v-
1ca2752b=""
data-v-c1dad078="">None
<!----> <div data-v-
3b7b98ba="" class="nav-actions"><a data-v-3b7b98ba="" href="#"
tabindex="-1" aria-hidden="true" class="nav-menucta"><span data-v-
3b7b98ba=""
class="nav-menucta-chevron"> <!----></
nav><div data-v-97c1bc40="" data-v-f59e0e60="" class="adjustable-sidebar-
width full-width-container topic-wrapper"><div data-v-97c1bc40=""
class="sidebar"><div data-v-97c1bc40="" class="aside" style="width: 137px; --
top-offset-mobile: 0px; --app-height: 663px; --top-offset: 48px;"><div data-v-
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6bb3a4bb="" data-v-f59e0e60="" aria-labelledby="<root>" class="navigator"
data-v-97c1bc40="" style="display: none;"><div data-v-3769e00e="" data-v-
aab192ac="" data-v-6bb3a4bb="" class="navigator-card"><div data-v-
3769e00e="" class="navigator-card-full-height"><div data-v-14aa6277="" data-
v-3769e00e="" class="navigator-card-inner"><div data-v-3769e00e="" data-v-
14aa6277="" class="head-wrapper"><button data-v-3769e00e="" data-v-
14aa6277="" aria-label="Close documentation navigator" class="close-card-
mobile"><svg data-v-7f60a732="" data-v-3769e00e="" aria-hidden="true"
xmlns="http://www.w3.org/2000/svg" class="svg-icon sidenav-icon icon-inline
close-icon" viewBox="0 0 14 14" height="14" data-v-14aa6277=""><path data-
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0.432-0.713 0.432-1.278v-6.562c0-0.565-0.145-0.991-0.433-1.28s-0.721-0.433-
1.298-0.433h-9.264c-0.569 0-1 0.144-1.292 0.43s-0.439 0.714-0.439
1.283v6.562c0 0.569 0.147 0.996 0.439 1.28s0.723 0.427 1.292
0.427h9.264zM4.837 11.030h-2.43c-0.258 0-0.455-0.068-0.591-0.205s-0.206-
0.34-0.206-0.609v-6.425c0-0.269 0.068-0.472 0.205-0.609s0.335-0.205 0.592-
0.205h2.43v8.053zM11.593 11.030h-5.828v-8.053h5.827c0.258 0 0.458 0.068
0.598 0.205s0.211 0.34 0.211 0.609v6.425c0 0.27-0.070 0.473-0.211 0.609s-
0.339 0.205-0.597 0.205zM3.791 4.963c0.091 0 0.168-0.033 0.233-0.1 0.060-
0.057 0.097-0.138 0.097-0.228s-0.037-0.17-0.097-0.228l-0-0c-0.058-0.058-

0.139-0.094-0.228-0.094-0.002 0-0.004 0-0.005 0h-1.132c-0.001-0-0.002-0-0.003-0-0.088 0-0.168 0.036-0.225 0.094l-0 0c-0.060 0.057-0.097 0.138-0.097 0.228s0.037 0.17 0.097 0.228l0 0c0.064 0.067 0.14 0.1 0.227 0.1h1.132zM3.791 6.379c0.091 0 0.168-0.032 0.233-0.097 0.060-0.057 0.098-0.137 0.098-0.226s-0.037-0.17-0.098-0.226l-0-0c-0.058-0.058-0.139-0.094-0.228-0.094-0.002 0-0.004 0-0.005 0h-1.132c-0.001-0-0.002-0-0.003-0-0.088 0-0.168 0.036-0.225 0.094l-0 0c-0.060 0.057-0.097 0.137-0.097 0.226s0.037 0.169 0.097 0.226l0 0c0.057 0.060 0.137 0.097 0.226 0.097 0 0 0.001 0 0.001 0h1.132zM3.791 7.796c0.091 0 0.168-0.032 0.233-0.097 0.059-0.056 0.096-0.135 0.097-0.222v-0c0-0.002 0-0.004 0-0.007 0-0.088-0.037-0.168-0.096-0.224l-0-0c-0.058-0.058-0.139-0.094-0.228-0.094-0.002 0-0.004 0-0.005 0h-1.132c-0.001-0-0.002-0-0.003-0-0.088 0-0.168 0.036-0.225 0.094l-0 0c-0.060 0.056-0.097 0.136-0.097 0.224 0 0.002 0 0.005 0 0.007l-0-0c0 0.083 0.032 0.158 0.097 0.222 0.057 0.060 0.137 0.097 0.225 0.097 0.001 0 0.001 0 0.002-0h1.132z"></path></svg></button><a data-v-3769e00e="" href="/documentation/xcode" class="navigator-head router-link-active" id="<root>" data-v-14aa6277=""><h2 data-v-3769e00e="" class="card-link">
Xcode </h2> <!----> To navigate the symbols, press Up Arrow, Down Arrow, Left Arrow or Right Arrow <!----> <svg data-v-7f60a732="" data-v-7334d1b4="" aria-hidden="true" xmlns="http://www.w3.org/2000/svg" class="svg-icon collection-icon icon-inline" viewBox="0 0 14 14"><title data-v-7f60a732="">Collection</title><g data-v-7f60a732="" transform="translate(2.116699, 4.455566)"><path data-v-7f60a732="" d="M-1.2412647-0.767793c0.4863523,0,0.8754342-0.3890819,0.8754342-0.8684863
c0-0.4863524-0.3890819-0.8754342-0.8754342-0.8754342S-2.116699-2.1226318-2.116699-1.6362793
C-2.116699-1.1568749-1.7276171-0.767793-1.2412647-0.767793z M1.829703-1.0804482h9.490819
c0.3126545,0,0.5627785-0.2431761,0.5627785-0.5558312c0-0.319603-0.250124-0.5627792-0.5627785-0.5627792H1.829703
c-0.319603,0-0.5627792,0.2431762-0.5627792,0.5627792C1.2669238-1.3236243,1.5101-1.0804482,1.829703-1.0804482z
M-1.2412647,3.4356809c0.4863523,0,0.8754342-0.3890817,0.8754342-0.8754342s-0.3890819-0.8754343-0.8754342-0.8754343
S-2.116699,2.0738943-2.116699,2.5602467S-1.7276171,3.4356809-1.2412647,3.4356809z M1.829703,3.1230259h9.490819
c0.3126545,0,0.5627785-0.2501242,0.5627785-0.5627792s-0.250124-0.5558312-0.5627785-0.5558312H1.829703
c-0.319603,0-0.5627792,0.243176-0.5627792,0.5558312S1.5101,3.1230259,1.829703,3.1230259z M-1.2412647,7.6391549

c0.4863523,0,0.8754342-0.3960299,0.8754342-0.8754344c0-0.4863524-0.3890819-0.8754339-0.8754342-0.8754339
S-2.116699,6.2773681-2.116699,6.7637205C-2.116699,7.243125-1.7276171,7.6391549-1.2412647,7.6391549z M1.829703,7.3195519
h9.490819c0.3126545,0,0.5627785-0.2431765,0.5627785-0.5558314c0-0.319603-0.250124-0.5627789-0.5627785-0.5627789H1.829703
c-0.319603,0-0.5627792,0.243176-0.5627792,0.5627789C1.2669238,7.0763755,1.5101,7.3195519,1.829703,7.3195519z"></path></g></svg> <!----> 5 of 74 symbols inside <a data-v-354ee602="" href="/documentation/apple-silicon/porting-your-macos-apps-to-apple-silicon" class="leaf-link" id="-79763505" tabindex="-1" aria-describedby="label--79763505 <root> usage--79763505"> Porting Your macOS Apps to Apple Silicon <!----> To navigate the symbols, press Up Arrow, Down Arrow, Left Arrow or Right Arrow <!----> <svg data-v-7f60a732="" data-v-7334d1b4="" aria-hidden="true" xmlns="http://www.w3.org/2000/svg" class="svg-icon article-icon icon-inline" viewBox="0 0 14 14"><g data-v-7f60a732="" transform="translate(3.616699, 1.608398)"><path data-v-7f60a732="" d="M0.0136063,12.3984375H6.948308c1.3516788,0,2.0242538-0.6856346,2.0242538-2.0438433V4.4254899
c0-0.842351-0.0979481-1.2080226-0.6203365-1.7434704L4.7542777-0.9812267
C4.2580094-1.490555,3.8466287-1.6015625,3.1152854-1.6015625H0.0136063c-1.3451493,0-2.0242538,0.6921641-2.0242538,2.0503731
v9.9057837C-2.0106475,11.7193327-1.3380729,12.3984375,0.0136063,12.3984375z M0.0593152,11.3471317
c-0.6725746,0-1.0186567-0.3591423-1.0186567-1.0121269V0.4684002c0-0.6464552,0.346082-1.0186567,1.0251865-1.0186567h2.9057837

v3.7938433c0,0.8227613,0.4113805,1.2276118,1.227612,1.2276118h3.7220149v5.8638062
c0,0.6529846-0.3460822,1.0121269-1.0251865,1.0121269H0.0593152z M4.3167777,3.4851911
c-0.2611938,0-0.3591416-0.1044776-0.3591416-0.3656716v-3.4673507l3.761194,3.8330224H4.3167777z M5.8839421,6.2734375H0.9277854
c-0.2350746,0-0.4113806,0.1763058-0.4113806,0.3983207c0,0.2285452,0.176306,0.404851,0.4113806,0.404851h4.9561567
c0.2285447,0,0.3983207-0.1763058,0.3983207-0.404851C6.2822628,6.4497433,6.1124868,6.2734375,5.8839421,6.2734375z
M5.8839421,8.5523558H0.9277854c-0.2350746,0-0.4113806,0.1828356-0.4113806,0.4113798

c0,0.2220154,0.176306,0.3917913,0.4113806,0.3917913h4.9561567c0.228544
7,0,0.3983207-0.169776,0.3983207-0.3917913

C6.2822628,8.7351913,6.1124868,8.5523558,5.8839421,8.5523558z"></path>
</g></svg> <!----
> 6 of 74
symbols inside <a data-v-354ee602=""
href="/documentation/xcode/finding-and-refactoring-code" class="leaf-link"
id="-1271830018" tabindex="-1" aria-describedby="label--1271830018 <root>
usage--1271830018"><p data-v-53c78ce5="" data-v-354ee602=""
class="highlight">Finding and Refactoring
Code</p><!----> <div class="vue-recycle-
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354ee602="" data-v-3769e00e="" id="container--1522429997"
class="navigator-card-item" style="--nesting-index: 0;"><div data-v-
354ee602="" class="head-wrapper"><span data-v-354ee602=""
hidden="hidden" id="usage--1522429997"> To navigate the symbols, press Up
Arrow, Down Arrow, Left Arrow or Right Arrow <div data-v-354ee602=""
class="depth-spacer"><!----> <div data-v-7334d1b4="" data-v-
354ee602="" class="NavigatorLeafIcon navigator-icon"><svg data-v-
7f60a732="" data-v-7334d1b4="" aria-hidden="true"
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c0-0.842351-0.0979481-1.2080226-0.6203365-1.7434704L4.7542777-
0.9812267
C4.2580094-1.490555,3.8466287-1.6015625,3.1152854-
1.6015625H0.0136063c-1.3451493,0-2.0242538,0.6921641-
2.0242538,2.0503731
v9.9057837C-2.0106475,11.7193327-
1.3380729,12.3984375,0.0136063,12.3984375z M0.0593152,11.3471317
c-0.6725746,0-1.0186567-0.3591423-1.0186567-1.0121269V0.4684002c0-
0.6464552,0.346082-1.0186567,1.0251865-1.0186567h2.9057837

v3.7938433c0,0.8227613,0.4113805,1.2276118,1.227612,1.2276118h3.722014
9v5.8638062
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M4.3167777,3.4851911
c-0.2611938,0-0.3591416-0.1044776-0.3591416-0.3656716v-
3.4673507l3.761194,3.8330224H4.3167777z
M5.8839421,6.2734375H0.9277854
c-0.2350746,0-0.4113806,0.1763058-
0.4113806,0.3983207c0,0.2285452,0.176306,0.404851,0.4113806,0.404851h4.
9561567
c0.2285447,0,0.3983207-0.1763058,0.3983207-
0.404851C6.2822628,6.4497433,6.1124868,6.2734375,5.8839421,6.2734375z
M5.8839421,8.5523558H0.9277854c-0.2350746,0-0.4113806,0.1828356-
0.4113806,0.4113798

c0,0.2220154,0.176306,0.3917913,0.4113806,0.3917913h4.9561567c0.228544
7,0,0.3983207-0.169776,0.3983207-0.3917913

C6.2822628,8.7351913,6.1124868,8.5523558,5.8839421,8.5523558z"></path>
</g></svg> <!----
> 7 of 74
symbols inside <a data-v-354ee602=""
href="/documentation/xcode/fixing-issues-in-your-code-as-you-type" class="leaf-
link" id="-1522429997" tabindex="-1" aria-describedby="label--1522429997
<root> usage--1522429997"><p data-v-53c78ce5="" data-v-354ee602=""
class="highlight">Fixing Issues in Your Code as You
Type</p><!----> <div class="vue-recycle-
scroller__item-view" style="transform: translateY(224px);"><div data-v-
354ee602="" data-v-3769e00e="" id="container--1122510790"
class="navigator-card-item" style="--nesting-index: 0;"><div data-v-
354ee602="" class="head-wrapper"><span data-v-354ee602=""
hidden="hidden" id="usage--1122510790"> To navigate the symbols, press Up
Arrow, Down Arrow, Left Arrow or Right Arrow <div data-v-354ee602=""
class="depth-spacer"><button data-v-354ee602="" tabindex="-1" aria-
labelledby="-1122510790" aria-expanded="false" aria-describedby="label--
1122510790 <root> label-parent--1122510790" class="tree-toggle"><svg data-
v-7f60a732="" data-v-354ee602="" aria-hidden="true"
xmlns="http://www.w3.org/2000/svg" class="svg-icon inline-chevron-right-icon
icon-inline chevron" viewBox="0 0 14 14"><path data-v-7f60a732=""
d="m4.81347656 13.1269531c.22558594
0 .41015625-.0820312.56738282-.2324219l5.31835942-
5.19531245c.1845703-.19140625.2802734-.38964844.2802734-.63574219
0-.23925781-.0888672-.45117187-.2802734-.62890625l-5.31835942-
5.20214843c-.15722657-.15039063-.34179688-.23242188-.56738282-.2324218
8-.45800781 0-.81347656.35546875-.81347656.80664062
0 .21875.09570312.43066407.24609375.58789063l4.79199219 4.67578125-
4.79199219
4.6621094c-.15722656.1640625-.24609375.3623047-.24609375.5878906
0
.4511719.35546875.8066406.81347656.8066406z"></path></svg></button>
<div data-v-7334d1b4="" data-v-354ee602="" class="NavigatorLeafIcon
navigator-icon"><svg data-v-7f60a732="" data-v-7334d1b4="" aria-
hidden="true" xmlns="http://www.w3.org/2000/svg" class="svg-icon collection-
icon icon-inline" viewBox="0 0 14 14"><title
data-v-7f60a732="">Collection</title><g data-v-7f60a732=""
transform="translate(2.116699, 4.455566)"><path data-v-7f60a732="" d="M-
1.2412647-0.767793c0.4863523,0,0.8754342-0.3890819,0.8754342-0.8684863
c0-0.4863524-0.3890819-0.8754342-0.8754342-0.8754342S-2.116699-
2.1226318-2.116699-1.6362793
C-2.116699-1.1568749-1.7276171-0.767793-1.2412647-0.767793z
M1.829703-1.0804482h9.490819
c0.3126545,0,0.5627785-0.2431761,0.5627785-0.5558312c0-0.319603-
0.250124-0.5627792-0.5627785-0.5627792H1.829703
c-0.319603,0-0.5627792,0.2431762-0.5627792,0.5627792C1.2669238-
1.3236243,1.5101-1.0804482,1.829703-1.0804482z
M-1.2412647,3.4356809c0.4863523,0,0.8754342-0.3890817,0.8754342-
0.8754342s-0.3890819-0.8754343-0.8754342-0.8754343
S-2.116699,2.0738943-2.116699,2.5602467S-1.7276171,3.4356809-
1.2412647,3.4356809z M1.829703,3.1230259h9.490819
c0.3126545,0,0.5627785-0.2501242,0.5627785-0.5627792s-0.250124-
0.5558312-0.5627785-0.5558312H1.829703

c-0.319603,0-0.5627792,0.243176-
0.5627792,0.5558312S1.5101,3.1230259,1.829703,3.1230259z M-
1.2412647,7.6391549
c0.4863523,0,0.8754342-0.3960299,0.8754342-0.8754344c0-0.4863524-
0.3890819-0.8754339-0.8754342-0.8754339
S-2.116699,6.2773681-2.116699,6.7637205C-2.116699,7.243125-
1.7276171,7.6391549-1.2412647,7.6391549z M1.829703,7.3195519
h9.490819c0.3126545,0,0.5627785-0.2431765,0.5627785-0.5558314c0-
0.319603-0.250124-0.5627789-0.5627785-0.5627789H1.829703
c-0.319603,0-0.5627792,0.243176-
0.5627792,0.5627789C1.2669238,7.0763755,1.5101,7.3195519,1.829703,7.319
5519z"></path></g></svg> <div data-v-354ee602="" class="title-
container"><span data-v-354ee602="" hidden="hidden" id="label-parent--
1122510790">, containing 19 symbols<span data-v-354ee602=""
id="label--1122510790" hidden="hidden"> 8 of 74 symbols inside <a
data-v-354ee602="" href="/documentation/xcode/build-system" class="leaf-
link" id="-1122510790" tabindex="-1" aria-describedby="label--1122510790
<root> label-parent--1122510790 usage--1122510790"><p data-v-53c78ce5=""
data-v-354ee602="" class="highlight">Build
System</p><!----> <div class="vue-recycle-
scroller__item-view" style="transform: translateY(256px);"><div data-v-
354ee602="" data-v-3769e00e="" id="container--1017033776"
class="navigator-card-item" style="--nesting-index: 0;"><div data-v-
354ee602="" class="head-wrapper"><span data-v-354ee602=""
hidden="hidden" id="usage--1017033776"> To navigate the symbols, press Up
Arrow, Down Arrow, Left Arrow or Right Arrow <div data-v-354ee602=""
class="depth-spacer"><button data-v-354ee602="" tabindex="-1" aria-
labelledby="-1017033776" aria-expanded="false" aria-describedby="label--
1017033776 <root> label-parent--1017033776" class="tree-toggle"><svg data-
v-7f60a732="" data-v-354ee602="" aria-hidden="true"
xmlns="http://www.w3.org/2000/svg" class="svg-icon inline-chevron-right-icon
icon-inline chevron" viewBox="0 0 14 14"><path data-v-7f60a732=""
d="m4.81347656 13.1269531c.22558594
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0-.23925781-.0888672-.45117187-.2802734-.62890625l-5.31835942-
5.20214843c-.15722657-.15039063-.34179688-.23242188-.56738282-.2324218
8-.45800781 0-.81347656.35546875-.81347656.80664062
0 .21875.09570312.43066407.24609375.58789063l4.79199219 4.67578125-
4.79199219
4.6621094c-.15722656.1640625-.24609375.3623047-.24609375.5878906
0
.4511719.35546875.8066406.81347656.8066406z"></path></svg></button>
<div data-v-7334d1b4="" data-v-354ee602="" class="NavigatorLeafIcon
navigator-icon"><svg data-v-7f60a732="" data-v-7334d1b4="" aria-
hidden="true" xmlns="http://www.w3.org/2000/svg" class="svg-icon collection-
icon icon-inline" viewBox="0 0 14 14"><title
data-v-7f60a732="">Collection</title><g data-v-7f60a732=""
transform="translate(2.116699, 4.455566)"><path data-v-7f60a732="" d="M-
1.2412647-0.767793c0.4863523,0,0.8754342-0.3890819,0.8754342-0.8684863
c0-0.4863524-0.3890819-0.8754342-0.8754342-0.8754342S-2.116699-
2.1226318-2.116699-1.6362793
C-2.116699-1.1568749-1.7276171-0.767793-1.2412647-0.767793z
M1.829703-1.0804482h9.490819

c0.3126545,0,0.5627785-0.2431761,0.5627785-0.5558312c0-0.319603-0.250124-0.5627792-0.5627785-0.5627792H1.829703
c-0.319603,0-0.5627792,0.2431762-0.5627792,0.5627792C1.2669238-1.3236243,1.5101-1.0804482,1.829703-1.0804482z
M-1.2412647,3.4356809c0.4863523,0,0.8754342-0.3890817,0.8754342-0.8754342s-0.3890819-0.8754343-0.8754342-0.8754343
S-2.116699,2.0738943-2.116699,2.5602467S-1.7276171,3.4356809-1.2412647,3.4356809z M1.829703,3.1230259h9.490819
c0.3126545,0,0.5627785-0.2501242,0.5627785-0.5627792s-0.250124-0.5558312-0.5627785-0.5558312H1.829703
c-0.319603,0-0.5627792,0.243176-0.5627792,0.5558312S1.5101,3.1230259,1.829703,3.1230259z M-1.2412647,7.6391549
c0.4863523,0,0.8754342-0.3960299,0.8754342-0.8754344c0-0.4863524-0.3890819-0.8754339-0.8754342-0.8754339
S-2.116699,6.2773681-2.116699,6.7637205C-2.116699,7.243125-1.7276171,7.6391549-1.2412647,7.6391549z M1.829703,7.3195519
h9.490819c0.3126545,0,0.5627785-0.2431765,0.5627785-0.5558314c0-0.319603-0.250124-0.5627789-0.5627785-0.5627789H1.829703
c-0.319603,0-0.5627792,0.243176-0.5627792,0.5627789C1.2669238,7.0763755,1.5101,7.3195519,1.829703,7.3195519z"></path></g></svg> , containing 5 symbols 9 of 74 symbols inside <a data-v-354ee602="" href="/documentation/xcode/application-binary-interfaces" class="leaf-link" id="-1017033776" tabindex="-1" aria-describedby="label--1017033776 <root> label-parent--1017033776 usage--1017033776"> Application Binary Interfaces <!----> To navigate the symbols, press Up Arrow, Down Arrow, Left Arrow or Right Arrow <button data-v-354ee602="" tabindex="-1" aria-labelledby="1737898381" aria-expanded="false" aria-describedby="label-1737898381 <root> label-parent-1737898381" class="tree-toggle"><svg data-v-7f60a732="" data-v-354ee602="" aria-hidden="true" xmlns="http://www.w3.org/2000/svg" class="svg-icon inline-chevron-right-icon icon-inline chevron" viewBox="0 0 14 14"><path data-v-7f60a732="" d="m4.81347656 13.1269531c.22558594
0 .41015625-.0820312.56738282-.2324219l5.31835942-5.19531245c.1845703-.19140625.2802734-.38964844.2802734-.63574219
0-.23925781-.0888672-.45117187-.2802734-.62890625l-5.31835942-5.20214843c-.15722657-.15039063-.34179688-.23242188-.56738282-.23242188-.45800781 0-.81347656.35546875-.81347656.80664062
0 .21875.09570312.43066407.24609375.58789063l4.79199219 4.67578125-4.79199219
4.6621094c-.15722656.1640625-.24609375.3623047-.24609375.5878906
0
.4511719.35546875.8066406.81347656.8066406z"></path></svg></button>
<div data-v-7334d1b4="" data-v-354ee602="" class="NavigatorLeafIcon

navigator-icon"><svg data-v-7f60a732="" data-v-7334d1b4="" aria-hidden="true" xmlns="http://www.w3.org/2000/svg" class="svg-icon collection-icon icon-inline" viewBox="0 0 14 14"><title data-v-7f60a732="">Collection</title><g data-v-7f60a732="" transform="translate(2.116699, 4.455566)"><path data-v-7f60a732="" d="M-1.2412647-0.767793c0.4863523,0,0.8754342-0.3890819,0.8754342-0.8684863
c0-0.4863524-0.3890819-0.8754342-0.8754342-0.8754342S-2.116699-2.1226318-2.116699-1.6362793
C-2.116699-1.1568749-1.7276171-0.767793-1.2412647-0.767793z M1.829703-1.0804482h9.490819
c0.3126545,0,0.5627785-0.2431761,0.5627785-0.5558312c0-0.319603-0.250124-0.5627792-0.5627785-0.5627792H1.829703
c-0.319603,0-0.5627792,0.2431762-0.5627792,0.5627792C1.2669238-1.3236243,1.5101-1.0804482,1.829703-1.0804482z
M-1.2412647,3.4356809c0.4863523,0,0.8754342-0.3890817,0.8754342-0.8754342s-0.3890819-0.8754343-0.8754342-0.8754343
S-2.116699,2.0738943-2.116699,2.5602467S-1.7276171,3.4356809-1.2412647,3.4356809z M1.829703,3.1230259h9.490819
c0.3126545,0,0.5627785-0.2501242,0.5627785-0.5627792s-0.250124-0.5558312-0.5627785-0.5558312H1.829703
c-0.319603,0-0.5627792,0.243176-0.5627792,0.5558312S1.5101,3.1230259,1.829703,3.1230259z M-1.2412647,7.6391549
c0.4863523,0,0.8754342-0.3960299,0.8754342-0.8754344c0-0.4863524-0.3890819-0.8754339-0.8754342-0.8754339
S-2.116699,6.2773681-2.116699,6.7637205C-2.116699,7.243125-1.7276171,7.6391549-1.2412647,7.6391549z M1.829703,7.3195519
h9.490819c0.3126545,0,0.5627785-0.2431765,0.5627785-0.5558314c0-0.319603-0.250124-0.5627789-0.5627785-0.5627789H1.829703
c-0.319603,0-0.5627792,0.243176-0.5627792,0.5627789C1.2669238,7.0763755,1.5101,7.3195519,1.829703,7.3195519z"></path></g></svg> , containing 9 symbols 10 of 74 symbols inside <a data-v-354ee602="" href="/documentation/xcode/source-control-management" class="leaf-link" id="1737898381" tabindex="-1" aria-describedby="label-1737898381 <root> label-parent-1737898381 usage-1737898381"> Source Control Management <!----> To navigate the symbols, press Up Arrow, Down Arrow, Left Arrow or Right Arrow <!----> <svg data-v-7f60a732="" data-v-7334d1b4="" aria-hidden="true" xmlns="http://www.w3.org/2000/svg" class="svg-icon article-icon icon-inline" viewBox="0 0 14 14"><g data-v-7f60a732="" transform="translate(3.616699, 1.608398)"><path data-v-7f60a732="" d="M0.0136063,12.3984375H6.948308c1.3516788,0,2.0242538-0.6856346,2.0242538-2.0438433V4.4254899

c0-0.842351-0.0979481-1.2080226-0.6203365-1.7434704L4.7542777-0.9812267
C4.2580094-1.490555,3.8466287-1.6015625,3.1152854-1.6015625H0.0136063c-1.3451493,0-2.0242538,0.6921641-2.0242538,2.0503731
v9.9057837C-2.0106475,11.7193327-1.3380729,12.3984375,0.0136063,12.3984375z M0.0593152,11.3471317
c-0.6725746,0-1.0186567-0.3591423-1.0186567-1.0121269V0.4684002c0-0.6464552,0.346082-1.0186567,1.0251865-1.0186567h2.9057837

v3.7938433c0,0.8227613,0.4113805,1.2276118,1.227612,1.2276118h3.7220149v5.8638062
c0,0.6529846-0.3460822,1.0121269-1.0251865,1.0121269H0.0593152z M4.3167777,3.4851911
c-0.2611938,0-0.3591416-0.1044776-0.3591416-0.3656716v-3.4673507l3.761194,3.8330224H4.3167777z M5.8839421,6.2734375H0.9277854
c-0.2350746,0-0.4113806,0.1763058-0.4113806,0.3983207c0,0.2285452,0.176306,0.404851,0.4113806,0.404851h4.9561567
c0.2285447,0,0.3983207-0.1763058,0.3983207-0.404851C6.2822628,6.4497433,6.1124868,6.2734375,5.8839421,6.2734375z
M5.8839421,8.5523558H0.9277854c-0.2350746,0-0.4113806,0.1828356-0.4113806,0.4113798

c0,0.2220154,0.176306,0.3917913,0.4113806,0.3917913h4.9561567c0.2285447,0,0.3983207-0.169776,0.3983207-0.3917913

C6.2822628,8.7351913,6.1124868,8.5523558,5.8839421,8.5523558z"></path></g></svg> <!----> 11 of 74 symbols inside <a data-v-354ee602="" href="/documentation/xcode/running-code-on-a-specific-version" class="leaf-link" id="303541445" tabindex="-1" aria-describedby="label-303541445 <root> usage-303541445"> Running code on a specific platform or OS version <!----> To navigate the symbols, press Up Arrow, Down Arrow, Left Arrow or Right Arrow <!----> <!----> <!----> 12 of 74 symbols inside <h3 data-v-354ee602="" id="-1788968407" tabindex="-1" aria-describedby="label--1788968407 <root> usage--1788968407" class="leaf-link"> Interface </h3><!----> To navigate the

symbols, press Up Arrow, Down Arrow, Left Arrow or Right Arrow <button data-v-354ee602="" tabindex="-1" aria-labelledby="-746088852" aria-expanded="false" aria-describedby="label--746088852 <root> label-parent--746088852" class="tree-toggle"><svg data-v-7f60a732="" data-v-354ee602="" aria-hidden="true" xmlns="http://www.w3.org/2000/svg" class="svg-icon inline-chevron-right-icon icon-inline chevron" viewBox="0 0 14 14"><path data-v-7f60a732="" d="m4.81347656 13.1269531c.22558594
0 .41015625-.0820312.56738282-.2324219l5.31835942-
5.19531245c.1845703-.19140625.2802734-.38964844.2802734-.63574219
0-.23925781-.0888672-.45117187-.2802734-.62890625l-5.31835942-
5.20214843c-.15722657-.15039063-.34179688-.23242188-.56738282-.2324218
8-.45800781 0-.81347656.35546875-.81347656.80664062
0 .21875.09570312.43066407.24609375.58789063l4.79199219 4.67578125-
4.79199219
4.6621094c-.15722656.1640625-.24609375.3623047-.24609375.5878906
0
.4511719.35546875.8066406.81347656.8066406z"></path></svg></button>
<svg data-v-7f60a732="" data-v-7334d1b4="" aria-hidden="true" xmlns="http://www.w3.org/2000/svg" class="svg-icon collection-icon icon-inline" viewBox="0 0 14 14"><title
data-v-7f60a732="">Collection</title><g data-v-7f60a732="" transform="translate(2.116699, 4.455566)"><path data-v-7f60a732="" d="M-
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c0-0.4863524-0.3890819-0.8754342-0.8754342-0.8754342S-2.116699-
2.1226318-2.116699-1.6362793
C-2.116699-1.1568749-1.7276171-0.767793-1.2412647-0.767793z
M1.829703-1.0804482h9.490819
c0.3126545,0,0.5627785-0.2431761,0.5627785-0.5558312c0-0.319603-
0.250124-0.5627792-0.5627785-0.5627792H1.829703
c-0.319603,0-0.5627792,0.2431762-0.5627792,0.5627792C1.2669238-
1.3236243,1.5101-1.0804482,1.829703-1.0804482z
M-1.2412647,3.4356809c0.4863523,0,0.8754342-0.3890817,0.8754342-
0.8754342s-0.3890819-0.8754343-0.8754342-0.8754343
S-2.116699,2.0738943-2.116699,2.5602467S-1.7276171,3.4356809-
1.2412647,3.4356809z M1.829703,3.1230259h9.490819
c0.3126545,0,0.5627785-0.2501242,0.5627785-0.5627792s-0.250124-
0.5558312-0.5627785-0.5558312H1.829703
c-0.319603,0-0.5627792,0.243176-
0.5627792,0.5558312S1.5101,3.1230259,1.829703,3.1230259z M-
1.2412647,7.6391549
c0.4863523,0,0.8754342-0.3960299,0.8754342-0.8754344c0-0.4863524-
0.3890819-0.8754339-0.8754342-0.8754339
S-2.116699,6.2773681-2.116699,6.7637205C-2.116699,7.243125-
1.7276171,7.6391549-1.2412647,7.6391549z M1.829703,7.3195519
h9.490819c0.3126545,0,0.5627785-0.2431765,0.5627785-0.5558314c0-
0.319603-0.250124-0.5627789-0.5627785-0.5627789H1.829703
c-0.319603,0-0.5627792,0.243176-
0.5627792,0.5627789C1.2669238,7.0763755,1.5101,7.3195519,1.829703,7.319
5519z"></path></g></svg> <span data-v-354ee602="" hidden="hidden" id="label-parent--
746088852">, containing 17 symbols 13 of 74 symbols inside <a

data-v-354ee602="" href="/documentation/xcode/asset-management" class="leaf-link" id="-746088852" tabindex="-1" aria-describedby="label--746088852 <root> label-parent--746088852 usage--746088852"> Asset Management <!----> To navigate the symbols, press Up Arrow, Down Arrow, Left Arrow or Right Arrow <!----> <svg data-v-7f60a732="" data-v-7334d1b4="" aria-hidden="true" xmlns="http://www.w3.org/2000/svg" class="svg-icon article-icon icon-inline" viewBox="0 0 14 14"><g data-v-7f60a732="" transform="translate(3.616699, 1.608398)"><path data-v-7f60a732="" d="M0.0136063,12.3984375H6.948308c1.3516788,0,2.0242538-0.6856346,2.0242538-2.0438433V4.4254899
c0-0.842351-0.0979481-1.2080226-0.6203365-1.7434704L4.7542777-0.9812267
C4.2580094-1.490555,3.8466287-1.6015625,3.1152854-1.6015625H0.0136063c-1.3451493,0-2.0242538,0.6921641-2.0242538,2.0503731
v9.9057837C-2.0106475,11.7193327-1.3380729,12.3984375,0.0136063,12.3984375z M0.0593152,11.3471317
c-0.6725746,0-1.0186567-0.3591423-1.0186567-1.0121269V0.4684002c0-0.6464552,0.346082-1.0186567,1.0251865-1.0186567h2.9057837

v3.7938433c0,0.8227613,0.4113805,1.2276118,1.227612,1.2276118h3.7220149v5.8638062
c0,0.6529846-0.3460822,1.0121269-1.0251865,1.0121269H0.0593152z M4.3167777,3.4851911
c-0.2611938,0-0.3591416-0.1044776-0.3591416-0.3656716v-3.4673507l3.761194,3.8330224H4.3167777z M5.8839421,6.2734375H0.9277854
c-0.2350746,0-0.4113806,0.1763058-0.4113806,0.3983207c0,0.2285452,0.176306,0.404851,0.4113806,0.404851h4.9561567
c0.2285447,0,0.3983207-0.1763058,0.3983207-0.404851C6.2822628,6.4497433,6.1124868,6.2734375,5.8839421,6.2734375z
M5.8839421,8.5523558H0.9277854c-0.2350746,0-0.4113806,0.1828356-0.4113806,0.4113798

c0,0.2220154,0.176306,0.3917913,0.4113806,0.3917913h4.9561567c0.2285447,0,0.3983207-0.169776,0.3983207-0.3917913

C6.2822628,8.7351913,6.1124868,8.5523558,5.8839421,8.5523558z"></path></g></svg> <!----> 14 of 74 symbols inside <a data-v-354ee602="" href="/documentation/xcode/creating-your-app-s-interface-with-swiftui" class="leaf-link" id="-114145427" tabindex="-1" aria-describedby="label--114145427 <root> usage--114145427"> Creating Your App’s Interface with

SwiftUI <!----> To navigate the symbols, press Up Arrow, Down Arrow, Left Arrow or Right Arrow <!----> <!----> <!----> 15 of 74 symbols inside <h3 data-v-354ee602="" id="-1788968404" tabindex="-1" aria-describedby="label--1788968404 <root> usage--1788968404" class="leaf-link"> Localization </h3><!----> To navigate the symbols, press Up Arrow, Down Arrow, Left Arrow or Right Arrow <button data-v-354ee602="" tabindex="-1" aria-labelledby="-1865258698" aria-expanded="false" aria-describedby="label--1865258698 <root> label-parent--1865258698" class="tree-toggle"><svg data-v-7f60a732="" data-v-354ee602="" aria-hidden="true" xmlns="http://www.w3.org/2000/svg" class="svg-icon inline-chevron-right-icon icon-inline chevron" viewBox="0 0 14 14"><path data-v-7f60a732="" d="m4.81347656 13.1269531c.22558594 0 .41015625-.0820312.56738282-.2324219l5.31835942-5.19531245c.1845703-.19140625.2802734-.38964844.2802734-.63574219 0-.23925781-.0888672-.45117187-.2802734-.62890625l-5.31835942-5.20214843c-.15722657-.15039063-.34179688-.23242188-.56738282-.23242188-.45800781 0-.81347656.35546875-.81347656.80664062 0 .21875.09570312.43066407.24609375.58789063l4.79199219 4.67578125-4.79199219 4.6621094c-.15722656.1640625-.24609375.3623047-.24609375.5878906 0 .4511719.35546875.8066406.81347656.8066406z"></path></svg></button> <svg data-v-7f60a732="" data-v-7334d1b4="" aria-hidden="true" xmlns="http://www.w3.org/2000/svg" class="svg-icon collection-icon icon-inline" viewBox="0 0 14 14"><title data-v-7f60a732="">Collection</title><g data-v-7f60a732="" transform="translate(2.116699, 4.455566)"><path data-v-7f60a732="" d="M-1.2412647-0.767793c0.4863523,0,0.8754342-0.3890819,0.8754342-0.8684863c0-0.4863524-0.3890819-0.8754342-0.8754342-0.8754342S-2.116699-2.1226318-2.116699-1.6362793C-2.116699-1.1568749-1.7276171-0.767793-1.2412647-0.767793z M1.829703-1.0804482h9.490819c0.3126545,0,0.5627785-0.2431761,0.5627785-0.5558312c0-0.319603-0.250124-0.5627792-0.5627785-0.5627792H1.829703c-0.319603,0-0.5627792,0.2431762-0.5627792,0.5627792C1.2669238-1.3236243,1.5101-1.0804482,1.829703-1.0804482z M-1.2412647,3.4356809c0.4863523,0,0.8754342-0.3890817,0.8754342-0.8754342s-0.3890819-0.8754343-0.8754342-0.8754343

S-2.116699,2.0738943-2.116699,2.5602467S-1.7276171,3.4356809-1.2412647,3.4356809z M1.829703,3.1230259h9.490819
c0.3126545,0,0.5627785-0.2501242,0.5627785-0.5627792s-0.250124-0.5558312-0.5627785-0.5558312H1.829703
c-0.319603,0-0.5627792,0.243176-0.5627792,0.5558312S1.5101,3.1230259,1.829703,3.1230259z M-1.2412647,7.6391549
c0.4863523,0,0.8754342-0.3960299,0.8754342-0.8754344c0-0.4863524-0.3890819-0.8754339-0.8754342-0.8754339
S-2.116699,6.2773681-2.116699,6.7637205C-2.116699,7.243125-1.7276171,7.6391549-1.2412647,7.6391549z M1.829703,7.3195519
h9.490819c0.3126545,0,0.5627785-0.2431765,0.5627785-0.5558314c0-0.319603-0.250124-0.5627789-0.5627785-0.5627789H1.829703
c-0.319603,0-0.5627792,0.243176-0.5627792,0.5627789C1.2669238,7.0763755,1.5101,7.3195519,1.829703,7.3195519z"></path></g></svg> , containing 20 symbols 16 of 74 symbols inside <a data-v-354ee602="" href="/documentation/xcode/localization" class="leaf-link" id="-1865258698" tabindex="-1" aria-describedby="label--1865258698 <root> label-parent--1865258698 usage--1865258698"> Localization <!----> To navigate the symbols, press Up Arrow, Down Arrow, Left Arrow or Right Arrow <!----> <svg data-v-7f60a732="" data-v-7334d1b4="" aria-hidden="true" xmlns="http://www.w3.org/2000/svg" class="svg-icon curly-brackets-icon icon-inline" viewBox="0 0 14 14"><g data-v-7f60a732="" transform="translate(-2.000000, -1.000000)"><g data-v-7f60a732="" transform="translate(2.616699, 1.948730)"><path data-v-7f60a732="" d="M0.0714366,6.0411005c0,0.3932204,0.2237288,0.6711864,0.6915254,0.7457628

C1.60364,6.9156766,1.9358432,7.3427954,1.9358432,8.4343204v1.9050856c0,1.8440676,0.840678,2.7118635,2.6711862,2.7118635
c0.1084747,0,0.2237291-0.0203381,0.3050852-0.0474567c0.2101693-0.0881357,0.3254237-0.2576275,0.3254237-0.4813566
c0-0.2644062-0.1152544-0.3999996-0.3525424-0.4610167c-0.0677967-0.0135593-0.1355934-0.0271187-0.2169495-0.0338984
c-1.1389828-0.081356-1.552542-0.5694914-1.552542-1.8237286V7.9529648c0-1.1457624-0.60339-1.7830505-1.6610171-1.8847456
c-0.020339,0-0.020339-0.0271187,0-0.0271187c1.0576271-0.1016951,1.6610171-0.7389832,1.6610171-1.8847456V1.8987277
c0-1.261017,0.4135592-1.7355932,1.552542-1.8169491c0.1084747-0.0067797,0.2033901-0.020339,0.2711868-0.0474576
c0.19661-0.0677966,0.298305-0.2169491,0.298305-0.4542373s-0.1220341-0.4-0.3525424-0.4813559

C4.7833009-0.9351707,4.6748261-0.94873,4.5392332-0.94873c-1.7694914,0-2.6033897,0.8813559-2.6033897,2.7118645v1.9118643
c0,1.0779662-0.3322033,1.5118647-1.1728812,1.6406779C0.2951654,5.3902531,0.0714366,5.6546597,0.0714366,6.0411005z
M12.6951647,6.0411005c0-0.3864408-0.2305079-0.6508474-0.6983051-0.7254238
c-0.8338976-0.1288133-1.1728811-0.5627117-1.1728811-1.6406779V1.7631344c0-1.8305085-0.8338985-2.7118645-2.6033897-2.7118645
c-0.1355934,0-0.2372875,0.0135593-0.3389826,0.0474576C7.6375384-0.8199164,7.522284-0.6572046,7.522284-0.4199165

s0.1152544,0.379661,0.3050847,0.4542373c0.0677967,0.0271186,0.1559324,0.040678,0.2644062,0.0474576

C9.223979,0.1360157,9.6510973,0.6377106,9.6510973,1.8987275v2.2576275c0,1.1525421,0.6033897,1.8847456,1.6542368,1.8847456
c0.020339,0,0.020339,0.0271187,0,0.0271187c-1.0508471,0-1.6542368,0.7322035-1.6542368,1.8847456v2.2508478
c0,1.2542372-0.4203396,1.7423725-1.5593224,1.8237286c-0.0813551,0.0067797-0.1423721,0.020339-0.2101688,0.0338984

C7.6443181,12.1088972,7.522284,12.25805,7.522284,12.5224562c0,0.2372885,0.1288137,0.4135599,0.3322034,0.4813566

c0.081356,0.0271187,0.1898308,0.0474567,0.2983046,0.0474567c1.8305082,0,2.6711864-0.8677959,2.6711864-2.7118635V8.4343204
c0-1.0915251,0.3389835-1.5186439,1.1728811-1.6474571C12.4646568,6.7122869,12.6951647,6.4343209,12.6951647,6.0411005z"></path></g></g></svg> <!----> 17 of 74 symbols inside <a data-v-354ee602="" href="/documentation/xcode/autosizing_views_for_localization_in_ios" class="leaf-link" id="314486128" tabindex="-1" aria-describedby="label-314486128 <root> usage-314486128"> Autosizing Views for Localization in iOS <!----> To navigate the symbols, press Up Arrow, Down Arrow, Left Arrow or Right Arrow <!----> <svg data-v-7f60a732="" data-v-7334d1b4="" aria-hidden="true" xmlns="http://www.w3.org/2000/svg" class="svg-icon curly-brackets-icon icon-inline" viewBox="0 0 14 14"><g data-v-7f60a732="" transform="translate(-2.000000, -1.000000)"><g data-v-7f60a732="" transform="translate(2.616699, 1.948730)"><path data-v-7f60a732="" d="M0.0714366,6.0411005c0,0.3932204,0.2237288,0.6711864,0.6915254,0.7457628

C1.60364,6.9156766,1.9358432,7.3427954,1.9358432,8.4343204v1.9050856c0,
1.8440676,0.840678,2.7118635,2.6711862,2.7118635
c0.1084747,0,0.2237291-0.0203381,0.3050852-0.0474567c0.2101693-
0.0881357,0.3254237-0.2576275,0.3254237-0.4813566
c0-0.2644062-0.1152544-0.3999996-0.3525424-0.4610167c-0.0677967-
0.0135593-0.1355934-0.0271187-0.2169495-0.0338984
c-1.1389828-0.081356-1.552542-0.5694914-1.552542-
1.8237286V7.9529648c0-1.1457624-0.60339-1.7830505-1.6610171-1.8847456
c-0.020339,0-0.020339-0.0271187,0-0.0271187c1.0576271-
0.1016951,1.6610171-0.7389832,1.6610171-1.8847456V1.8987277
c0-1.261017,0.4135592-1.7355932,1.552542-1.8169491c0.1084747-
0.0067797,0.2033901-0.020339,0.2711868-0.0474576
c0.19661-0.0677966,0.298305-0.2169491,0.298305-0.4542373s-
0.1220341-0.4-0.3525424-0.4813559
C4.7833009-0.9351707,4.6748261-0.94873,4.5392332-0.94873c-
1.7694914,0-2.6033897,0.8813559-2.6033897,2.7118645v1.9118643
c0,1.0779662-0.3322033,1.5118647-
1.1728812,1.6406779C0.2951654,5.3902531,0.0714366,5.6546597,0.0714366,
6.0411005z
M12.6951647,6.0411005c0-0.3864408-0.2305079-0.6508474-0.6983051-
0.7254238
c-0.8338976-0.1288133-1.1728811-0.5627117-1.1728811-
1.6406779V1.7631344c0-1.8305085-0.8338985-2.7118645-2.6033897-
2.7118645
c-0.1355934,0-0.2372875,0.0135593-0.3389826,0.0474576C7.6375384-
0.8199164,7.522284-0.6572046,7.522284-0.4199165

s0.1152544,0.379661,0.3050847,0.4542373c0.0677967,0.0271186,0.1559324,0
.040678,0.2644062,0.0474576

C9.223979,0.1360157,9.6510973,0.6377106,9.6510973,1.8987275v2.2576275c
0,1.1525421,0.6033897,1.8847456,1.6542368,1.8847456
c0.020339,0,0.020339,0.0271187,0,0.0271187c-1.0508471,0-
1.6542368,0.7322035-1.6542368,1.8847456v2.2508478
c0,1.2542372-0.4203396,1.7423725-1.5593224,1.8237286c-
0.0813551,0.0067797-0.1423721,0.020339-0.2101688,0.0338984

C7.6443181,12.1088972,7.522284,12.25805,7.522284,12.5224562c0,0.2372885
,0.1288137,0.4135599,0.3322034,0.4813566

c0.081356,0.0271187,0.1898308,0.0474567,0.2983046,0.0474567c1.8305082,0
,2.6711864-0.8677959,2.6711864-2.7118635V8.4343204
c0-1.0915251,0.3389835-1.5186439,1.1728811-
1.6474571C12.4646568,6.7122869,12.6951647,6.4343209,12.6951647,6.04110
05z"></path></g></g></svg> <div data-v-354ee602="" class="title-
container"><!----><span data-v-354ee602="" id="label-804025250"
hidden="hidden"> 18 of 74 symbols inside <a data-v-354ee602=""
href="/documentation/xcode/localization-friendly_layouts_in_macos" class="leaf-
link" id="804025250" tabindex="-1" aria-describedby="label-804025250 <root>
usage-804025250"><p data-v-53c78ce5="" data-v-354ee602=""
class="highlight">Localization-Friendly Layouts in
macOS</p><!----> <div class="vue-recycle-
scroller__item-view" style="transform: translateY(576px);"><div data-v-

354ee602="" data-v-3769e00e="" id="container--1788968400" class="navigator-card-item" style="--nesting-index: 0;"> To navigate the symbols, press Up Arrow, Down Arrow, Left Arrow or Right Arrow <!----> <!----> <!----> 19 of 74 symbols inside <h3 data-v-354ee602="" id="-1788968400" tabindex="-1" aria-describedby="label--1788968400 <root> usage--1788968400" class="leaf-link"> Project Configuration </h3><!----> To navigate the symbols, press Up Arrow, Down Arrow, Left Arrow or Right Arrow <!----> <svg data-v-7f60a732="" data-v-7334d1b4="" aria-hidden="true" xmlns="http://www.w3.org/2000/svg" class="svg-icon article-icon icon-inline" viewBox="0 0 14 14"><g data-v-7f60a732="" transform="translate(3.616699, 1.608398)"><path data-v-7f60a732="" d="M0.0136063,12.3984375H6.948308c1.3516788,0,2.0242538-0.6856346,2.0242538-2.0438433V4.4254899
c0-0.842351-0.0979481-1.2080226-0.6203365-1.7434704L4.7542777-0.9812267
C4.2580094-1.490555,3.8466287-1.6015625,3.1152854-1.6015625H0.0136063c-1.3451493,0-2.0242538,0.6921641-2.0242538,2.0503731
v9.9057837C-2.0106475,11.7193327-1.3380729,12.3984375,0.0136063,12.3984375z M0.0593152,11.3471317
c-0.6725746,0-1.0186567-0.3591423-1.0186567-1.0121269V0.4684002c0-0.6464552,0.346082-1.0186567,1.0251865-1.0186567h2.9057837

v3.7938433c0,0.8227613,0.4113805,1.2276118,1.227612,1.2276118h3.7220149v5.8638062
c0,0.6529846-0.3460822,1.0121269-1.0251865,1.0121269H0.0593152z M4.3167777,3.4851911
c-0.2611938,0-0.3591416-0.1044776-0.3591416-0.3656716v-3.4673507l3.761194,3.8330224H4.3167777z M5.8839421,6.2734375H0.9277854
c-0.2350746,0-0.4113806,0.1763058-0.4113806,0.3983207c0,0.2285452,0.176306,0.404851,0.4113806,0.404851h4.9561567
c0.2285447,0,0.3983207-0.1763058,0.3983207-0.404851C6.2822628,6.4497433,6.1124868,6.2734375,5.8839421,6.2734375z
M5.8839421,8.5523558H0.9277854c-0.2350746,0-0.4113806,0.1828356-0.4113806,0.4113798

c0,0.2220154,0.176306,0.3917913,0.4113806,0.3917913h4.9561567c0.2285447,0,0.3983207-0.169776,0.3983207-0.3917913

C6.2822628,8.7351913,6.1124868,8.5523558,5.8839421,8.5523558z"></path>
</g></svg> <!----
> 20 of
74 symbols inside <a data-v-354ee602="" href="/documentation/apple-
silicon/building-a-universal-macos-binary" class="leaf-link" id="-1233796352"
tabindex="-1" aria-describedby="label--1233796352 <root> usage--
1233796352"><p data-v-53c78ce5="" data-v-354ee602=""
class="highlight">Building a Universal macOS
Binary</p><!----> <div class="vue-recycle-
scroller__item-view" style="transform: translateY(640px);"><div data-v-
354ee602="" data-v-3769e00e="" id="container-1664505703"
class="navigator-card-item" style="--nesting-index: 0;"><div data-v-
354ee602="" class="head-wrapper"><span data-v-354ee602=""
hidden="hidden" id="usage-1664505703"> To navigate the symbols, press Up
Arrow, Down Arrow, Left Arrow or Right Arrow <div data-v-354ee602=""
class="depth-spacer"><!----> <div data-v-7334d1b4="" data-v-
354ee602="" class="NavigatorLeafIcon navigator-icon"><svg data-v-
7f60a732="" data-v-7334d1b4="" aria-hidden="true"
xmlns="http://www.w3.org/2000/svg" class="svg-icon article-icon icon-inline"
viewBox="0 0 14 14"><g data-v-7f60a732="" transform="translate(3.616699,
1.608398)"><path data-v-7f60a732=""
d="M0.0136063,12.3984375H6.948308c1.3516788,0,2.0242538-
0.6856346,2.0242538-2.0438433V4.4254899
c0-0.842351-0.0979481-1.2080226-0.6203365-1.7434704L4.7542777-
0.9812267
C4.2580094-1.490555,3.8466287-1.6015625,3.1152854-
1.6015625H0.0136063c-1.3451493,0-2.0242538,0.6921641-
2.0242538,2.0503731
v9.9057837C-2.0106475,11.7193327-
1.3380729,12.3984375,0.0136063,12.3984375z M0.0593152,11.3471317
c-0.6725746,0-1.0186567-0.3591423-1.0186567-1.0121269V0.4684002c0-
0.6464552,0.346082-1.0186567,1.0251865-1.0186567h2.9057837

v3.7938433c0,0.8227613,0.4113805,1.2276118,1.227612,1.2276118h3.722014
9v5.8638062
c0,0.6529846-0.3460822,1.0121269-1.0251865,1.0121269H0.0593152z
M4.3167777,3.4851911
c-0.2611938,0-0.3591416-0.1044776-0.3591416-0.3656716v-
3.4673507l3.761194,3.8330224H4.3167777z
M5.8839421,6.2734375H0.9277854
c-0.2350746,0-0.4113806,0.1763058-
0.4113806,0.3983207c0,0.2285452,0.176306,0.404851,0.4113806,0.404851h4.
9561567
c0.2285447,0,0.3983207-0.1763058,0.3983207-
0.404851C6.2822628,6.4497433,6.1124868,6.2734375,5.8839421,6.2734375z
M5.8839421,8.5523558H0.9277854c-0.2350746,0-0.4113806,0.1828356-
0.4113806,0.4113798

c0,0.2220154,0.176306,0.3917913,0.4113806,0.3917913h4.9561567c0.228544
7,0,0.3983207-0.169776,0.3983207-0.3917913

C6.2822628,8.7351913,6.1124868,8.5523558,5.8839421,8.5523558z"></path>
</g></svg> <!----

> 21 of 74 symbols inside <a data-v-354ee602="" href="/documentation/xcode/adding-package-dependencies-to-your-app" class="leaf-link" id="1664505703" tabindex="-1" aria-describedby="label-1664505703 <root> usage-1664505703"> Adding Package Dependencies to Your App <!----> To navigate the symbols, press Up Arrow, Down Arrow, Left Arrow or Right Arrow <!----> <svg data-v-7f60a732="" data-v-7334d1b4="" aria-hidden="true" xmlns="http://www.w3.org/2000/svg" class="svg-icon article-icon icon-inline" viewBox="0 0 14 14"><g data-v-7f60a732="" transform="translate(3.616699, 1.608398)"><path data-v-7f60a732="" d="M0.0136063,12.3984375H6.948308c1.3516788,0,2.0242538-0.6856346,2.0242538-2.0438433V4.4254899
c0-0.842351-0.0979481-1.2080226-0.6203365-1.7434704L4.7542777-0.9812267
C4.2580094-1.490555,3.8466287-1.6015625,3.1152854-1.6015625H0.0136063c-1.3451493,0-2.0242538,0.6921641-2.0242538,2.0503731
v9.9057837C-2.0106475,11.7193327-1.3380729,12.3984375,0.0136063,12.3984375z M0.0593152,11.3471317
c-0.6725746,0-1.0186567-0.3591423-1.0186567-1.0121269V0.4684002c0-0.6464552,0.346082-1.0186567,1.0251865-1.0186567h2.9057837

v3.7938433c0,0.8227613,0.4113805,1.2276118,1.227612,1.2276118h3.7220149v5.8638062
c0,0.6529846-0.3460822,1.0121269-1.0251865,1.0121269H0.0593152z M4.3167777,3.4851911
c-0.2611938,0-0.3591416-0.1044776-0.3591416-0.3656716v-3.4673507l3.761194,3.8330224H4.3167777z M5.8839421,6.2734375H0.9277854
c-0.2350746,0-0.4113806,0.1763058-0.4113806,0.3983207c0,0.2285452,0.176306,0.404851,0.4113806,0.404851h4.9561567
c0.2285447,0,0.3983207-0.1763058,0.3983207-0.404851C6.2822628,6.4497433,6.1124868,6.2734375,5.8839421,6.2734375z
M5.8839421,8.5523558H0.9277854c-0.2350746,0-0.4113806,0.1828356-0.4113806,0.4113798

c0,0.2220154,0.176306,0.3917913,0.4113806,0.3917913h4.9561567c0.2285447,0,0.3983207-0.169776,0.3983207-0.3917913

C6.2822628,8.7351913,6.1124868,8.5523558,5.8839421,8.5523558z"></path></g></svg> <!----> 22 of 74 symbols inside <a data-v-354ee602="" href="/documentation/uikit/mac_catalyst/creating_a_mac_version_of_your_ipad_app" class="leaf-link" id="389733698" tabindex="-1" aria-describedby="label-

389733698 <root> usage-389733698"> Creating a Mac Version of Your iPad App <!----> To navigate the symbols, press Up Arrow, Down Arrow, Left Arrow or Right Arrow <!----> <svg data-v-7f60a732="" data-v-7334d1b4="" aria-hidden="true" xmlns="http://www.w3.org/2000/svg" class="svg-icon article-icon icon-inline" viewBox="0 0 14 14"><g data-v-7f60a732="" transform="translate(3.616699, 1.608398)"><path data-v-7f60a732="" d="M0.0136063,12.3984375H6.948308c1.3516788,0,2.0242538-0.6856346,2.0242538-2.0438433V4.4254899
c0-0.842351-0.0979481-1.2080226-0.6203365-1.7434704L4.7542777-0.9812267
C4.2580094-1.490555,3.8466287-1.6015625,3.1152854-1.6015625H0.0136063c-1.3451493,0-2.0242538,0.6921641-2.0242538,2.0503731
v9.9057837C-2.0106475,11.7193327-1.3380729,12.3984375,0.0136063,12.3984375z M0.0593152,11.3471317
c-0.6725746,0-1.0186567-0.3591423-1.0186567-1.0121269V0.4684002c0-0.6464552,0.346082-1.0186567,1.0251865-1.0186567h2.9057837

v3.7938433c0,0.8227613,0.4113805,1.2276118,1.227612,1.2276118h3.7220149v5.8638062
c0,0.6529846-0.3460822,1.0121269-1.0251865,1.0121269H0.0593152z M4.3167777,3.4851911
c-0.2611938,0-0.3591416-0.1044776-0.3591416-0.3656716v-3.4673507l3.761194,3.8330224H4.3167777z M5.8839421,6.2734375H0.9277854
c-0.2350746,0-0.4113806,0.1763058-0.4113806,0.3983207c0,0.2285452,0.176306,0.404851,0.4113806,0.404851h4.9561567
c0.2285447,0,0.3983207-0.1763058,0.3983207-0.404851C6.2822628,6.4497433,6.1124868,6.2734375,5.8839421,6.2734375z
M5.8839421,8.5523558H0.9277854c-0.2350746,0-0.4113806,0.1828356-0.4113806,0.4113798

c0,0.2220154,0.176306,0.3917913,0.4113806,0.3917913h4.9561567c0.2285447,0,0.3983207-0.169776,0.3983207-0.3917913

C6.2822628,8.7351913,6.1124868,8.5523558,5.8839421,8.5523558z"></path></g></svg> <!----> 23 of 74 symbols inside <a data-v-354ee602="" href="/documentation/xcode/embedding-a-helper-tool-in-a-sandboxed-app" class="leaf-link" id="1788340749" tabindex="-1" aria-describedby="label-1788340749 <root> usage-1788340749"> Embedding a Command-Line Tool in a Sandboxed App <!----> <div class="vue-

recycle-scroller__item-view" style="transform: translateY(736px);"> To navigate the symbols, press Up Arrow, Down Arrow, Left Arrow or Right Arrow <!----> <svg data-v-7f60a732="" data-v-7334d1b4="" aria-hidden="true" xmlns="http://www.w3.org/2000/svg" class="svg-icon article-icon icon-inline" viewBox="0 0 14 14"><g data-v-7f60a732="" transform="translate(3.616699, 1.608398)"><path data-v-7f60a732="" d="M0.0136063,12.3984375H6.948308c1.3516788,0,2.0242538-0.6856346,2.0242538-2.0438433V4.4254899
c0-0.842351-0.0979481-1.2080226-0.6203365-1.7434704L4.7542777-0.9812267
C4.2580094-1.490555,3.8466287-1.6015625,3.1152854-1.6015625H0.0136063c-1.3451493,0-2.0242538,0.6921641-2.0242538,2.0503731
v9.9057837C-2.0106475,11.7193327-1.3380729,12.3984375,0.0136063,12.3984375z M0.0593152,11.3471317
c-0.6725746,0-1.0186567-0.3591423-1.0186567-1.0121269V0.4684002c0-0.6464552,0.346082-1.0186567,1.0251865-1.0186567h2.9057837

v3.7938433c0,0.8227613,0.4113805,1.2276118,1.227612,1.2276118h3.7220149v5.8638062
c0,0.6529846-0.3460822,1.0121269-1.0251865,1.0121269H0.0593152z M4.3167777,3.4851911
c-0.2611938,0-0.3591416-0.1044776-0.3591416-0.3656716v-3.4673507l3.761194,3.8330224H4.3167777z M5.8839421,6.2734375H0.9277854
c-0.2350746,0-0.4113806,0.1763058-0.4113806,0.3983207c0,0.2285452,0.176306,0.404851,0.4113806,0.404851h4.9561567
c0.2285447,0,0.3983207-0.1763058,0.3983207-0.404851C6.2822628,6.4497433,6.1124868,6.2734375,5.8839421,6.2734375z
M5.8839421,8.5523558H0.9277854c-0.2350746,0-0.4113806,0.1828356-0.4113806,0.4113798

c0,0.2220154,0.176306,0.3917913,0.4113806,0.3917913h4.9561567c0.2285447,0,0.3983207-0.169776,0.3983207-0.3917913

C6.2822628,8.7351913,6.1124868,8.5523558,5.8839421,8.5523558z"></path></g></svg> <!----> 24 of 74 symbols inside <a data-v-354ee602="" href="/documentation/xcode/embedding-nonstandard-code-structures-in-a-bundle" class="leaf-link" id="-1546469342" tabindex="-1" aria-describedby="label--1546469342 <root> usage--1546469342"> Embedding Nonstandard Code Structures in a Bundle <!----> <div data-v-354ee602="" data-v-3769e00e="" id="container--1788968373" class="navigator-card-item" style="--nesting-index:

0;"> To navigate the symbols, press Up Arrow, Down Arrow, Left Arrow or Right Arrow <!----> <!----> <!----> 25 of 74 symbols inside <h3 data-v-354ee602="" id="-1788968373" tabindex="-1" aria-describedby="label--1788968373 <root> usage--1788968373" class="leaf-link"> Running Apps </h3><!----> To navigate the symbols, press Up Arrow, Down Arrow, Left Arrow or Right Arrow <!----> <svg data-v-7f60a732="" data-v-7334d1b4="" aria-hidden="true" xmlns="http://www.w3.org/2000/svg" class="svg-icon article-icon icon-inline" viewBox="0 0 14 14"><g data-v-7f60a732="" transform="translate(3.616699, 1.608398)"><path data-v-7f60a732="" d="M0.0136063,12.3984375H6.948308c1.3516788,0,2.0242538-0.6856346,2.0242538-2.0438433V4.4254899
c0-0.842351-0.0979481-1.2080226-0.6203365-1.7434704L4.7542777-0.9812267
C4.2580094-1.490555,3.8466287-1.6015625,3.1152854-1.6015625H0.0136063c-1.3451493,0-2.0242538,0.6921641-2.0242538,2.0503731
v9.9057837C-2.0106475,11.7193327-1.3380729,12.3984375,0.0136063,12.3984375z M0.0593152,11.3471317
c-0.6725746,0-1.0186567-0.3591423-1.0186567-1.0121269V0.4684002c0-0.6464552,0.346082-1.0186567,1.0251865-1.0186567h2.9057837

v3.7938433c0,0.8227613,0.4113805,1.2276118,1.227612,1.2276118h3.7220149v5.8638062
c0,0.6529846-0.3460822,1.0121269-1.0251865,1.0121269H0.0593152z M4.3167777,3.4851911
c-0.2611938,0-0.3591416-0.1044776-0.3591416-0.3656716v-3.4673507l3.761194,3.8330224H4.3167777z M5.8839421,6.2734375H0.9277854
c-0.2350746,0-0.4113806,0.1763058-0.4113806,0.3983207c0,0.2285452,0.176306,0.404851,0.4113806,0.404851h4.9561567
c0.2285447,0,0.3983207-0.1763058,0.3983207-0.404851C6.2822628,6.4497433,6.1124868,6.2734375,5.8839421,6.2734375z
M5.8839421,8.5523558H0.9277854c-0.2350746,0-0.4113806,0.1828356-0.4113806,0.4113798

c0,0.2220154,0.176306,0.3917913,0.4113806,0.3917913h4.9561567c0.2285447,0,0.3983207-0.169776,0.3983207-0.3917913

C6.2822628,8.7351913,6.1124868,8.5523558,5.8839421,8.5523558z"></path></g></svg> <!----> 26 of 74

symbols inside <a data-v-354ee602="" href="/documentation/xcode/running-your-app-in-the-simulator-or-on-a-device" class="leaf-link" id="554559411" tabindex="-1" aria-describedby="label-554559411 <root> usage-554559411"> Running Your App in the Simulator or on a Device <!----> To navigate the symbols, press Up Arrow, Down Arrow, Left Arrow or Right Arrow <!----> <svg data-v-7f60a732="" data-v-7334d1b4="" aria-hidden="true" xmlns="http://www.w3.org/2000/svg" class="svg-icon article-icon icon-inline" viewBox="0 0 14 14"><g data-v-7f60a732="" transform="translate(3.616699, 1.608398)"><path data-v-7f60a732="" d="M0.0136063,12.3984375H6.948308c1.3516788,0,2.0242538-0.6856346,2.0242538-2.0438433V4.4254899
c0-0.842351-0.0979481-1.2080226-0.6203365-1.7434704L4.7542777-0.9812267
C4.2580094-1.490555,3.8466287-1.6015625,3.1152854-1.6015625H0.0136063c-1.3451493,0-2.0242538,0.6921641-2.0242538,2.0503731
v9.9057837C-2.0106475,11.7193327-1.3380729,12.3984375,0.0136063,12.3984375z M0.0593152,11.3471317
c-0.6725746,0-1.0186567-0.3591423-1.0186567-1.0121269V0.4684002c0-0.6464552,0.346082-1.0186567,1.0251865-1.0186567h2.9057837

v3.7938433c0,0.8227613,0.4113805,1.2276118,1.227612,1.2276118h3.7220149v5.8638062
c0,0.6529846-0.3460822,1.0121269-1.0251865,1.0121269H0.0593152z M4.3167777,3.4851911
c-0.2611938,0-0.3591416-0.1044776-0.3591416-0.3656716v-3.4673507l3.761194,3.8330224H4.3167777z M5.8839421,6.2734375H0.9277854
c-0.2350746,0-0.4113806,0.1763058-0.4113806,0.3983207c0,0.2285452,0.176306,0.404851,0.4113806,0.404851h4.9561567
c0.2285447,0,0.3983207-0.1763058,0.3983207-0.404851C6.2822628,6.4497433,6.1124868,6.2734375,5.8839421,6.2734375z
M5.8839421,8.5523558H0.9277854c-0.2350746,0-0.4113806,0.1828356-0.4113806,0.4113798

c0,0.2220154,0.176306,0.3917913,0.4113806,0.3917913h4.9561567c0.2285447,0,0.3983207-0.169776,0.3983207-0.3917913

C6.2822628,8.7351913,6.1124868,8.5523558,5.8839421,8.5523558z"></path></g></svg> <!----> 27 of 74 symbols inside <a data-v-354ee602="" href="/documentation/xcode/installing-additional-simulator-runtimes" class="leaf-link" id="1291276683" tabindex="-1" aria-describedby="label-

1291276683 <root> usage-1291276683"> Installing and managing simulator runtimes <!----> To navigate the symbols, press Up Arrow, Down Arrow, Left Arrow or Right Arrow <!----> <svg data-v-7f60a732="" data-v-7334d1b4="" aria-hidden="true" xmlns="http://www.w3.org/2000/svg" class="svg-icon article-icon icon-inline" viewBox="0 0 14 14"><g data-v-7f60a732="" transform="translate(3.616699, 1.608398)"><path data-v-7f60a732="" d="M0.0136063,12.3984375H6.948308c1.3516788,0,2.0242538-0.6856346,2.0242538-2.0438433V4.4254899
c0-0.842351-0.0979481-1.2080226-0.6203365-1.7434704L4.7542777-0.9812267
C4.2580094-1.490555,3.8466287-1.6015625,3.1152854-1.6015625H0.0136063c-1.3451493,0-2.0242538,0.6921641-2.0242538,2.0503731
v9.9057837C-2.0106475,11.7193327-1.3380729,12.3984375,0.0136063,12.3984375z M0.0593152,11.3471317
c-0.6725746,0-1.0186567-0.3591423-1.0186567-1.0121269V0.4684002c0-0.6464552,0.346082-1.0186567,1.0251865-1.0186567h2.9057837

v3.7938433c0,0.8227613,0.4113805,1.2276118,1.227612,1.2276118h3.7220149v5.8638062
c0,0.6529846-0.3460822,1.0121269-1.0251865,1.0121269H0.0593152z M4.3167777,3.4851911
c-0.2611938,0-0.3591416-0.1044776-0.3591416-0.3656716v-3.4673507l3.761194,3.8330224H4.3167777z M5.8839421,6.2734375H0.9277854
c-0.2350746,0-0.4113806,0.1763058-0.4113806,0.3983207c0,0.2285452,0.176306,0.404851,0.4113806,0.404851h4.9561567
c0.2285447,0,0.3983207-0.1763058,0.3983207-0.404851C6.2822628,6.4497433,6.1124868,6.2734375,5.8839421,6.2734375z
M5.8839421,8.5523558H0.9277854c-0.2350746,0-0.4113806,0.1828356-0.4113806,0.4113798

c0,0.2220154,0.176306,0.3917913,0.4113806,0.3917913h4.9561567c0.2285447,0,0.3983207-0.169776,0.3983207-0.3917913

C6.2822628,8.7351913,6.1124868,8.5523558,5.8839421,8.5523558z"></path></g></svg> <!----> 28 of 74 symbols inside <a data-v-354ee602="" href="/documentation/xcode/enabling-developer-mode-on-a-device" class="leaf-link" id="-1002251360" tabindex="-1" aria-describedby="label--1002251360 <root> usage--1002251360"> Enabling Developer Mode on a device <!----> <div class="vue-recycle-

scroller__item-view" style="transform: translateY(896px);"> To navigate the symbols, press Up Arrow, Down Arrow, Left Arrow or Right Arrow <!----> <!----> <!----> 29 of 74 symbols inside <h3 data-v-354ee602="" id="-1788968369" tabindex="-1" aria-describedby="label--1788968369 <root> usage--1788968369" class="leaf-link"> Debugging </h3><!----> To navigate the symbols, press Up Arrow, Down Arrow, Left Arrow or Right Arrow <!----> <svg data-v-7f60a732="" data-v-7334d1b4="" aria-hidden="true" xmlns="http://www.w3.org/2000/svg" class="svg-icon article-icon icon-inline" viewBox="0 0 14 14"><g data-v-7f60a732="" transform="translate(3.616699, 1.608398)"><path data-v-7f60a732="" d="M0.0136063,12.3984375H6.948308c1.3516788,0,2.0242538-0.6856346,2.0242538-2.0438433V4.4254899
c0-0.842351-0.0979481-1.2080226-0.6203365-1.7434704L4.7542777-0.9812267
C4.2580094-1.490555,3.8466287-1.6015625,3.1152854-1.6015625H0.0136063c-1.3451493,0-2.0242538,0.6921641-2.0242538,2.0503731
v9.9057837C-2.0106475,11.7193327-1.3380729,12.3984375,0.0136063,12.3984375z M0.0593152,11.3471317
c-0.6725746,0-1.0186567-0.3591423-1.0186567-1.0121269V0.4684002c0-0.6464552,0.346082-1.0186567,1.0251865-1.0186567h2.9057837

v3.7938433c0,0.8227613,0.4113805,1.2276118,1.227612,1.2276118h3.7220149v5.8638062
c0,0.6529846-0.3460822,1.0121269-1.0251865,1.0121269H0.0593152z M4.3167777,3.4851911
c-0.2611938,0-0.3591416-0.1044776-0.3591416-0.3656716v-3.4673507l3.761194,3.8330224H4.3167777z M5.8839421,6.2734375H0.9277854
c-0.2350746,0-0.4113806,0.1763058-0.4113806,0.3983207c0,0.2285452,0.176306,0.404851,0.4113806,0.404851h4.9561567
c0.2285447,0,0.3983207-0.1763058,0.3983207-0.404851C6.2822628,6.4497433,6.1124868,6.2734375,5.8839421,6.2734375z
M5.8839421,8.5523558H0.9277854c-0.2350746,0-0.4113806,0.1828356-0.4113806,0.4113798

c0,0.2220154,0.176306,0.3917913,0.4113806,0.3917913h4.9561567c0.2285447,0,0.3983207-0.169776,0.3983207-0.3917913

C6.2822628,8.7351913,6.1124868,8.5523558,5.8839421,8.5523558z"></path>
</g></svg> <!----
> 30 of
74 symbols inside <a data-v-354ee602=""
href="/documentation/xcode/diagnosing-and-resolving-bugs-in-your-running-
app" class="leaf-link" id="2028199961" tabindex="-1" aria-describedby="label-
2028199961 <root> usage-2028199961"><p data-v-53c78ce5="" data-v-
354ee602="" class="highlight">Diagnosing and Resolving Bugs in Your Running
App</p><!----> <div class="vue-recycle-
scroller__item-view" style="transform: translateY(960px);"><div data-v-
354ee602="" data-v-3769e00e="" id="container--1952030988"
class="navigator-card-item" style="--nesting-index: 0;"><div data-v-
354ee602="" class="head-wrapper"><span data-v-354ee602=""
hidden="hidden" id="usage--1952030988"> To navigate the symbols, press Up
Arrow, Down Arrow, Left Arrow or Right Arrow <div data-v-354ee602=""
class="depth-spacer"><!----> <div data-v-7334d1b4="" data-v-
354ee602="" class="NavigatorLeafIcon navigator-icon"><svg data-v-
7f60a732="" data-v-7334d1b4="" aria-hidden="true"
xmlns="http://www.w3.org/2000/svg" class="svg-icon article-icon icon-inline"
viewBox="0 0 14 14"><g data-v-7f60a732="" transform="translate(3.616699,
1.608398)"><path data-v-7f60a732=""
d="M0.0136063,12.3984375H6.948308c1.3516788,0,2.0242538-
0.6856346,2.0242538-2.0438433V4.4254899
c0-0.842351-0.0979481-1.2080226-0.6203365-1.7434704L4.7542777-
0.9812267
C4.2580094-1.490555,3.8466287-1.6015625,3.1152854-
1.6015625H0.0136063c-1.3451493,0-2.0242538,0.6921641-
2.0242538,2.0503731
v9.9057837C-2.0106475,11.7193327-
1.3380729,12.3984375,0.0136063,12.3984375z M0.0593152,11.3471317
c-0.6725746,0-1.0186567-0.3591423-1.0186567-1.0121269V0.4684002c0-
0.6464552,0.346082-1.0186567,1.0251865-1.0186567h2.9057837

v3.7938433c0,0.8227613,0.4113805,1.2276118,1.227612,1.2276118h3.722014
9v5.8638062
c0,0.6529846-0.3460822,1.0121269-1.0251865,1.0121269H0.0593152z
M4.3167777,3.4851911
c-0.2611938,0-0.3591416-0.1044776-0.3591416-0.3656716v-
3.4673507l3.761194,3.8330224H4.3167777z
M5.8839421,6.2734375H0.9277854
c-0.2350746,0-0.4113806,0.1763058-
0.4113806,0.3983207c0,0.2285452,0.176306,0.404851,0.4113806,0.404851h4.
9561567
c0.2285447,0,0.3983207-0.1763058,0.3983207-
0.404851C6.2822628,6.4497433,6.1124868,6.2734375,5.8839421,6.2734375z
M5.8839421,8.5523558H0.9277854c-0.2350746,0-0.4113806,0.1828356-
0.4113806,0.4113798

c0,0.2220154,0.176306,0.3917913,0.4113806,0.3917913h4.9561567c0.228544
7,0,0.3983207-0.169776,0.3983207-0.3917913

C6.2822628,8.7351913,6.1124868,8.5523558,5.8839421,8.5523558z"></path>
</g></svg> <!----

> 31 of 74 symbols inside <a data-v-354ee602="" href="/documentation/xcode/setting-breakpoints-to-pause-your-running-app" class="leaf-link" id="-1952030988" tabindex="-1" aria-describedby="label--1952030988 <root> usage--1952030988"> Setting Breakpoints to Pause Your Running App <!----> To navigate the symbols, press Up Arrow, Down Arrow, Left Arrow or Right Arrow <!----> <svg data-v-7f60a732="" data-v-7334d1b4="" aria-hidden="true" xmlns="http://www.w3.org/2000/svg" class="svg-icon article-icon icon-inline" viewBox="0 0 14 14"><g data-v-7f60a732="" transform="translate(3.616699, 1.608398)"><path data-v-7f60a732="" d="M0.0136063,12.3984375H6.948308c1.3516788,0,2.0242538-0.6856346,2.0242538-2.0438433V4.4254899
c0-0.842351-0.0979481-1.2080226-0.6203365-1.7434704L4.7542777-0.9812267
C4.2580094-1.490555,3.8466287-1.6015625,3.1152854-1.6015625H0.0136063c-1.3451493,0-2.0242538,0.6921641-2.0242538,2.0503731
v9.9057837C-2.0106475,11.7193327-1.3380729,12.3984375,0.0136063,12.3984375z M0.0593152,11.3471317
c-0.6725746,0-1.0186567-0.3591423-1.0186567-1.0121269V0.4684002c0-0.6464552,0.346082-1.0186567,1.0251865-1.0186567h2.9057837

v3.7938433c0,0.8227613,0.4113805,1.2276118,1.227612,1.2276118h3.7220149v5.8638062
c0,0.6529846-0.3460822,1.0121269-1.0251865,1.0121269H0.0593152z M4.3167777,3.4851911
c-0.2611938,0-0.3591416-0.1044776-0.3591416-0.3656716v-3.4673507l3.761194,3.8330224H4.3167777z M5.8839421,6.2734375H0.9277854
c-0.2350746,0-0.4113806,0.1763058-0.4113806,0.3983207c0,0.2285452,0.176306,0.404851,0.4113806,0.404851h4.9561567
c0.2285447,0,0.3983207-0.1763058,0.3983207-0.404851C6.2822628,6.4497433,6.1124868,6.2734375,5.8839421,6.2734375z
M5.8839421,8.5523558H0.9277854c-0.2350746,0-0.4113806,0.1828356-0.4113806,0.4113798

c0,0.2220154,0.176306,0.3917913,0.4113806,0.3917913h4.9561567c0.2285447,0,0.3983207-0.169776,0.3983207-0.3917913

C6.2822628,8.7351913,6.1124868,8.5523558,5.8839421,8.5523558z"></path></g></svg> <!----> 32 of 74 symbols inside <a data-v-354ee602="" href="/documentation/xcode/stepping-through-code-and-inspecting-variables-to-isolate-bugs" class="leaf-link" id="427086892" tabindex="-1" aria-

describedby="label-427086892 <root> usage-427086892"> Stepping Through Code and Inspecting Variables to Isolate Bugs <!---->
To navigate the symbols, press Up Arrow, Down Arrow, Left Arrow or Right Arrow
<!----> <svg data-v-7f60a732="" data-v-7334d1b4="" aria-hidden="true" xmlns="http://www.w3.org/2000/svg" class="svg-icon article-icon icon-inline" viewBox="0 0 14 14"><g data-v-7f60a732="" transform="translate(3.616699, 1.608398)"><path data-v-7f60a732="" d="M0.0136063,12.3984375H6.948308c1.3516788,0,2.0242538-0.6856346,2.0242538-2.0438433V4.4254899
c0-0.842351-0.0979481-1.2080226-0.6203365-1.7434704L4.7542777-0.9812267
C4.2580094-1.490555,3.8466287-1.6015625,3.1152854-1.6015625H0.0136063c-1.3451493,0-2.0242538,0.6921641-2.0242538,2.0503731
v9.9057837C-2.0106475,11.7193327-1.3380729,12.3984375,0.0136063,12.3984375z M0.0593152,11.3471317
c-0.6725746,0-1.0186567-0.3591423-1.0186567-1.0121269V0.4684002c0-0.6464552,0.346082-1.0186567,1.0251865-1.0186567h2.9057837

v3.7938433c0,0.8227613,0.4113805,1.2276118,1.227612,1.2276118h3.7220149v5.8638062
c0,0.6529846-0.3460822,1.0121269-1.0251865,1.0121269H0.0593152z M4.3167777,3.4851911
c-0.2611938,0-0.3591416-0.1044776-0.3591416-0.3656716v-3.4673507l3.761194,3.8330224H4.3167777z M5.8839421,6.2734375H0.9277854
c-0.2350746,0-0.4113806,0.1763058-0.4113806,0.3983207c0,0.2285452,0.176306,0.404851,0.4113806,0.404851h4.9561567
c0.2285447,0,0.3983207-0.1763058,0.3983207-0.404851C6.2822628,6.4497433,6.1124868,6.2734375,5.8839421,6.2734375z
M5.8839421,8.5523558H0.9277854c-0.2350746,0-0.4113806,0.1828356-0.4113806,0.4113798

c0,0.2220154,0.176306,0.3917913,0.4113806,0.3917913h4.9561567c0.2285447,0,0.3983207-0.169776,0.3983207-0.3917913

C6.2822628,8.7351913,6.1124868,8.5523558,5.8839421,8.5523558z"></path></g></svg> <!----> 33 of 74 symbols inside <a data-v-354ee602="" href="/documentation/xcode/building-your-app-to-include-debugging-information" class="leaf-link" id="59239239" tabindex="-1" aria-describedby="label-59239239 <root> usage-59239239"> Building Your App to Include Debugging Information <!----> <div

class="vue-recycle-scroller__item-view" style="transform: translateY(1056px);"> To navigate the symbols, press Up Arrow, Down Arrow, Left Arrow or Right Arrow <!----> <svg data-v-7f60a732="" data-v-7334d1b4="" aria-hidden="true" xmlns="http://www.w3.org/2000/svg" class="svg-icon article-icon icon-inline" viewBox="0 0 14 14"><g data-v-7f60a732="" transform="translate(3.616699, 1.608398)"><path data-v-7f60a732="" d="M0.0136063,12.3984375H6.948308c1.3516788,0,2.0242538-0.6856346,2.0242538-2.0438433V4.4254899
c0-0.842351-0.0979481-1.2080226-0.6203365-1.7434704L4.7542777-0.9812267
C4.2580094-1.490555,3.8466287-1.6015625,3.1152854-1.6015625H0.0136063c-1.3451493,0-2.0242538,0.6921641-2.0242538,2.0503731
v9.9057837C-2.0106475,11.7193327-1.3380729,12.3984375,0.0136063,12.3984375z M0.0593152,11.3471317
c-0.6725746,0-1.0186567-0.3591423-1.0186567-1.0121269V0.4684002c0-0.6464552,0.346082-1.0186567,1.0251865-1.0186567h2.9057837

v3.7938433c0,0.8227613,0.4113805,1.2276118,1.227612,1.2276118h3.7220149v5.8638062
c0,0.6529846-0.3460822,1.0121269-1.0251865,1.0121269H0.0593152z M4.3167777,3.4851911
c-0.2611938,0-0.3591416-0.1044776-0.3591416-0.3656716v-3.4673507l3.761194,3.8330224H4.3167777z M5.8839421,6.2734375H0.9277854
c-0.2350746,0-0.4113806,0.1763058-0.4113806,0.3983207c0,0.2285452,0.176306,0.404851,0.4113806,0.404851h4.9561567
c0.2285447,0,0.3983207-0.1763058,0.3983207-0.404851C6.2822628,6.4497433,6.1124868,6.2734375,5.8839421,6.2734375z
M5.8839421,8.5523558H0.9277854c-0.2350746,0-0.4113806,0.1828356-0.4113806,0.4113798

c0,0.2220154,0.176306,0.3917913,0.4113806,0.3917913h4.9561567c0.2285447,0,0.3983207-0.169776,0.3983207-0.3917913

C6.2822628,8.7351913,6.1124868,8.5523558,5.8839421,8.5523558z"></path></g></svg> <!----> 34 of 74 symbols inside <a data-v-354ee602="" href="/documentation/foundation/url_loading_system/analyzing_http_traffic_with_instruments" class="leaf-link" id="78284226" tabindex="-1" aria-describedby="label-78284226 <root> usage-78284226"> Analyzing HTTP Traffic with Instruments <!----> <div data-v-

354ee602="" class="head-wrapper"> To navigate the symbols, press Up Arrow, Down Arrow, Left Arrow or Right Arrow <!----> <svg data-v-7f60a732="" data-v-7334d1b4="" aria-hidden="true" xmlns="http://www.w3.org/2000/svg" class="svg-icon article-icon icon-inline" viewBox="0 0 14 14"><g data-v-7f60a732="" transform="translate(3.616699, 1.608398)"><path data-v-7f60a732="" d="M0.0136063,12.3984375H6.948308c1.3516788,0,2.0242538-0.6856346,2.0242538-2.0438433V4.4254899
c0-0.842351-0.0979481-1.2080226-0.6203365-1.7434704L4.7542777-0.9812267
C4.2580094-1.490555,3.8466287-1.6015625,3.1152854-1.6015625H0.0136063c-1.3451493,0-2.0242538,0.6921641-2.0242538,2.0503731
v9.9057837C-2.0106475,11.7193327-1.3380729,12.3984375,0.0136063,12.3984375z M0.0593152,11.3471317
c-0.6725746,0-1.0186567-0.3591423-1.0186567-1.0121269V0.4684002c0-0.6464552,0.346082-1.0186567,1.0251865-1.0186567h2.9057837

v3.7938433c0,0.8227613,0.4113805,1.2276118,1.227612,1.2276118h3.7220149v5.8638062
c0,0.6529846-0.3460822,1.0121269-1.0251865,1.0121269H0.0593152z M4.3167777,3.4851911
c-0.2611938,0-0.3591416-0.1044776-0.3591416-0.3656716v-3.4673507l3.761194,3.8330224H4.3167777z M5.8839421,6.2734375H0.9277854
c-0.2350746,0-0.4113806,0.1763058-0.4113806,0.3983207c0,0.2285452,0.176306,0.404851,0.4113806,0.404851h4.9561567
c0.2285447,0,0.3983207-0.1763058,0.3983207-0.404851C6.2822628,6.4497433,6.1124868,6.2734375,5.8839421,6.2734375z
M5.8839421,8.5523558H0.9277854c-0.2350746,0-0.4113806,0.1828356-0.4113806,0.4113798

c0,0.2220154,0.176306,0.3917913,0.4113806,0.3917913h4.9561567c0.2285447,0,0.3983207-0.169776,0.3983207-0.3917913

C6.2822628,8.7351913,6.1124868,8.5523558,5.8839421,8.5523558z"></path></g></svg> <!----> 35 of 74 symbols inside <a data-v-354ee602="" href="/documentation/bundleresources/entitlements/diagnosing_issues_with_entitlements" class="leaf-link" id="-858340427" tabindex="-1" aria-describedby="label--858340427 <root> usage--858340427"> Diagnosing Issues with Entitlements <!----> To navigate the symbols, press Up Arrow, Down Arrow, Left Arrow or Right Arrow <div data-v-354ee602=""

class="depth-spacer"><button data-v-354ee602="" tabindex="-1" aria-labelledby="1920082270" aria-expanded="false" aria-describedby="label-1920082270 <root> label-parent-1920082270" class="tree-toggle"><svg data-v-7f60a732="" data-v-354ee602="" aria-hidden="true" xmlns="http://www.w3.org/2000/svg" class="svg-icon inline-chevron-right-icon icon-inline chevron" viewBox="0 0 14 14"><path data-v-7f60a732="" d="m4.81347656 13.1269531c.22558594
0 .41015625-.0820312.56738282-.2324219l5.31835942-5.19531245c.1845703-.19140625.2802734-.38964844.2802734-.63574219
0-.23925781-.0888672-.45117187-.2802734-.62890625l-5.31835942-5.20214843c-.15722657-.15039063-.34179688-.23242188-.56738282-.2324218
8-.45800781 0-.81347656.35546875-.81347656.80664062
0 .21875.09570312.43066407.24609375.58789063l4.79199219 4.67578125-4.79199219
4.6621094c-.15722656.1640625-.24609375.3623047-.24609375.5878906
0
.4511719.35546875.8066406.81347656.8066406z"></path></svg></button>
<svg data-v-7f60a732="" data-v-7334d1b4="" aria-hidden="true" xmlns="http://www.w3.org/2000/svg" class="svg-icon collection-icon icon-inline" viewBox="0 0 14 14"><title
data-v-7f60a732="">Collection</title><g data-v-7f60a732="" transform="translate(2.116699, 4.455566)"><path data-v-7f60a732="" d="M-1.2412647-0.767793c0.4863523,0,0.8754342-0.3890819,0.8754342-0.8684863
c0-0.4863524-0.3890819-0.8754342-0.8754342-0.8754342S-2.116699-2.1226318-2.116699-1.6362793
C-2.116699-1.1568749-1.7276171-0.767793-1.2412647-0.767793z M1.829703-1.0804482h9.490819
c0.3126545,0,0.5627785-0.2431761,0.5627785-0.5558312c0-0.319603-0.250124-0.5627792-0.5627785-0.5627792H1.829703
c-0.319603,0-0.5627792,0.2431762-0.5627792,0.5627792C1.2669238-1.3236243,1.5101-1.0804482,1.829703-1.0804482z
M-1.2412647,3.4356809c0.4863523,0,0.8754342-0.3890817,0.8754342-0.8754342s-0.3890819-0.8754343-0.8754342-0.8754343
S-2.116699,2.0738943-2.116699,2.5602467S-1.7276171,3.4356809-1.2412647,3.4356809z M1.829703,3.1230259h9.490819
c0.3126545,0,0.5627785-0.2501242,0.5627785-0.5627792s-0.250124-0.5558312-0.5627785-0.5558312H1.829703
c-0.319603,0-0.5627792,0.243176-0.5627792,0.5558312S1.5101,3.1230259,1.829703,3.1230259z M-1.2412647,7.6391549
c0.4863523,0,0.8754342-0.3960299,0.8754342-0.8754344c0-0.4863524-0.3890819-0.8754339-0.8754342-0.8754339
S-2.116699,6.2773681-2.116699,6.7637205C-2.116699,7.243125-1.7276171,7.6391549-1.2412647,7.6391549z M1.829703,7.3195519
h9.490819c0.3126545,0,0.5627785-0.2431765,0.5627785-0.5558314c0-0.319603-0.250124-0.5627789-0.5627785-0.5627789H1.829703
c-0.319603,0-0.5627792,0.243176-0.5627792,0.5627789C1.2669238,7.0763755,1.5101,7.3195519,1.829703,7.3195519z"></path></g></svg> , containing 31 symbols 36 of 74 symbols inside <a data-v-354ee602="" href="/documentation/xcode/diagnosing-memory-thread-

and-crash-issues-early" class="leaf-link" id="1920082270" tabindex="-1" aria-describedby="label-1920082270 <root> label-parent-1920082270 usage-1920082270"> Diagnosing Memory, Thread, and Crash Issues Early <!----> To navigate the symbols, press Up Arrow, Down Arrow, Left Arrow or Right Arrow <button data-v-354ee602="" tabindex="-1" aria-labelledby="-67825086" aria-expanded="true" aria-describedby="label--67825086 <root> label-parent--67825086" class="tree-toggle"><svg data-v-7f60a732="" data-v-354ee602="" aria-hidden="true" xmlns="http://www.w3.org/2000/svg" class="svg-icon inline-chevron-right-icon icon-inline chevron rotate" viewBox="0 0 14 14"><path data-v-7f60a732="" d="m4.81347656 13.1269531c.22558594 0 .41015625-.0820312.56738282-.2324219l5.31835942-5.19531245c.1845703-.19140625.2802734-.38964844.2802734-.63574219 0-.23925781-.0888672-.45117187-.2802734-.62890625l-5.31835942-5.20214843c-.15722657-.15039063-.34179688-.23242188-.56738282-.2324218 8-.45800781 0-.81347656.35546875-.81347656.80664062 0 .21875.09570312.43066407.24609375.58789063l4.79199219 4.67578125-4.79199219 4.6621094c-.15722656.1640625-.24609375.3623047-.24609375.5878906 0 .4511719.35546875.8066406.81347656.8066406z"></path></svg></button> <svg data-v-7f60a732="" data-v-7334d1b4="" aria-hidden="true" xmlns="http://www.w3.org/2000/svg" class="svg-icon collection-icon icon-inline" viewBox="0 0 14 14"><title data-v-7f60a732="">Collection</title><g data-v-7f60a732="" transform="translate(2.116699, 4.455566)"><path data-v-7f60a732="" d="M-1.2412647-0.767793c0.4863523,0,0.8754342-0.3890819,0.8754342-0.8684863 c0-0.4863524-0.3890819-0.8754342-0.8754342-0.8754342S-2.116699-2.1226318-2.116699-1.6362793 C-2.116699-1.1568749-1.7276171-0.767793-1.2412647-0.767793z M1.829703-1.0804482h9.490819 c0.3126545,0,0.5627785-0.2431761,0.5627785-0.5558312c0-0.319603-0.250124-0.5627792-0.5627785-0.5627792H1.829703 c-0.319603,0-0.5627792,0.2431762-0.5627792,0.5627792C1.2669238-1.3236243,1.5101-1.0804482,1.829703-1.0804482z M-1.2412647,3.4356809c0.4863523,0,0.8754342-0.3890817,0.8754342-0.8754342s-0.3890819-0.8754343-0.8754342-0.8754343 S-2.116699,2.0738943-2.116699,2.5602467S-1.7276171,3.4356809-1.2412647,3.4356809z M1.829703,3.1230259h9.490819 c0.3126545,0,0.5627785-0.2501242,0.5627785-0.5627792s-0.250124-0.5558312-0.5627785-0.5558312H1.829703 c-0.319603,0-0.5627792,0.243176-0.5627792,0.5558312S1.5101,3.1230259,1.829703,3.1230259z M-1.2412647,7.6391549 c0.4863523,0,0.8754342-0.3960299,0.8754342-0.8754344c0-0.4863524-0.3890819-0.8754339-0.8754342-0.8754339

S-2.116699,6.2773681-2.116699,6.7637205C-2.116699,7.243125-1.7276171,7.6391549-1.2412647,7.6391549z M1.829703,7.3195519
h9.490819c0.3126545,0,0.5627785-0.2431765,0.5627785-0.5558314c0-0.319603-0.250124-0.5627789-0.5627785-0.5627789H1.829703
c-0.319603,0-0.5627792,0.243176-0.5627792,0.5627789C1.2669238,7.0763755,1.5101,7.3195519,1.829703,7.3195519z"></path></g></svg> , containing 11 symbols 37 of 74 symbols inside <a data-v-354ee602="" href="/documentation/xcode/diagnosing-issues-using-crash-reports-and-device-logs" aria-current="page" class="leaf-link router-link-exact-active router-link-active bolded" id="-67825086" tabindex="0" aria-describedby="label--67825086 <root> label-parent--67825086 usage--67825086"> Diagnosing Issues Using Crash Reports and Device Logs <!----> To navigate the symbols, press Up Arrow, Down Arrow, Left Arrow or Right Arrow <!----> <!----> <!----> 1 of 11 symbols inside <h3 data-v-354ee602="" id="-82741719" tabindex="-1" aria-describedby="label--82741719 -67825086 usage--82741719" class="leaf-link"> Essentials </h3><!----> To navigate the symbols, press Up Arrow, Down Arrow, Left Arrow or Right Arrow <!----> <svg data-v-7f60a732="" data-v-7334d1b4="" aria-hidden="true" xmlns="http://www.w3.org/2000/svg" class="svg-icon article-icon icon-inline" viewBox="0 0 14 14"><g data-v-7f60a732="" transform="translate(3.616699, 1.608398)"><path data-v-7f60a732="" d="M0.0136063,12.3984375H6.948308c1.3516788,0,2.0242538-0.6856346,2.0242538-2.0438433V4.4254899
c0-0.842351-0.0979481-1.2080226-0.6203365-1.7434704L4.7542777-0.9812267
C4.2580094-1.490555,3.8466287-1.6015625,3.1152854-1.6015625H0.0136063c-1.3451493,0-2.0242538,0.6921641-2.0242538,2.0503731
v9.9057837C-2.0106475,11.7193327-1.3380729,12.3984375,0.0136063,12.3984375z M0.0593152,11.3471317
c-0.6725746,0-1.0186567-0.3591423-1.0186567-1.0121269V0.4684002c0-0.6464552,0.346082-1.0186567,1.0251865-1.0186567h2.9057837

v3.7938433c0,0.8227613,0.4113805,1.2276118,1.227612,1.2276118h3.7220149v5.8638062
c0,0.6529846-0.3460822,1.0121269-1.0251865,1.0121269H0.0593152z
M4.3167777,3.4851911
c-0.2611938,0-0.3591416-0.1044776-0.3591416-0.3656716v-3.4673507l3.761194,3.8330224H4.3167777z
M5.8839421,6.2734375H0.9277854
c-0.2350746,0-0.4113806,0.1763058-0.4113806,0.3983207c0,0.2285452,0.176306,0.404851,0.4113806,0.404851h4.9561567
c0.2285447,0,0.3983207-0.1763058,0.3983207-0.404851C6.2822628,6.4497433,6.1124868,6.2734375,5.8839421,6.2734375z
M5.8839421,8.5523558H0.9277854c-0.2350746,0-0.4113806,0.1828356-0.4113806,0.4113798

c0,0.2220154,0.176306,0.3917913,0.4113806,0.3917913h4.9561567c0.2285447,0,0.3983207-0.169776,0.3983207-0.3917913

C6.2822628,8.7351913,6.1124868,8.5523558,5.8839421,8.5523558z"></path></g></svg> <!----> 2 of 11 symbols inside <a data-v-354ee602="" href="/documentation/xcode/acquiring-crash-reports-and-diagnostic-logs" class="leaf-link" id="1415964305" tabindex="-1" aria-describedby="label-1415964305 -67825086 usage-1415964305"> Acquiring Crash Reports and Diagnostic Logs <!----> To navigate the symbols, press Up Arrow, Down Arrow, Left Arrow or Right Arrow <!----> <!----> <!----> 3 of 11 symbols inside <h3 data-v-354ee602="" id="-82741717" tabindex="-1" aria-describedby="label--82741717 -67825086 usage--82741717" class="leaf-link"> Crash Reports </h3><!----> To navigate the symbols, press Up Arrow, Down Arrow, Left Arrow or Right Arrow <!----> <svg data-v-7f60a732="" data-v-7334d1b4="" aria-hidden="true" xmlns="http://www.w3.org/2000/svg" class="svg-icon article-icon icon-inline" viewBox="0 0 14 14"><g data-v-7f60a732="" transform="translate(3.616699, 1.608398)"><path data-v-7f60a732="" d="M0.0136063,12.3984375H6.948308c1.3516788,0,2.0242538-0.6856346,2.0242538-2.0438433V4.4254899

c0-0.842351-0.0979481-1.2080226-0.6203365-1.7434704L4.7542777-0.9812267
C4.2580094-1.490555,3.8466287-1.6015625,3.1152854-1.6015625H0.0136063c-1.3451493,0-2.0242538,0.6921641-2.0242538,2.0503731
v9.9057837C-2.0106475,11.7193327-1.3380729,12.3984375,0.0136063,12.3984375z M0.0593152,11.3471317
c-0.6725746,0-1.0186567-0.3591423-1.0186567-1.0121269V0.4684002c0-0.6464552,0.346082-1.0186567,1.0251865-1.0186567h2.9057837

v3.7938433c0,0.8227613,0.4113805,1.2276118,1.227612,1.2276118h3.7220149v5.8638062
c0,0.6529846-0.3460822,1.0121269-1.0251865,1.0121269H0.0593152z M4.3167777,3.4851911
c-0.2611938,0-0.3591416-0.1044776-0.3591416-0.3656716v-3.4673507l3.761194,3.8330224H4.3167777z M5.8839421,6.2734375H0.9277854
c-0.2350746,0-0.4113806,0.1763058-0.4113806,0.3983207c0,0.2285452,0.176306,0.404851,0.4113806,0.404851h4.9561567
c0.2285447,0,0.3983207-0.1763058,0.3983207-0.404851C6.2822628,6.4497433,6.1124868,6.2734375,5.8839421,6.2734375z
M5.8839421,8.5523558H0.9277854c-0.2350746,0-0.4113806,0.1828356-0.4113806,0.4113798

c0,0.2220154,0.176306,0.3917913,0.4113806,0.3917913h4.9561567c0.2285447,0,0.3983207-0.169776,0.3983207-0.3917913

C6.2822628,8.7351913,6.1124868,8.5523558,5.8839421,8.5523558z"></path></g></svg> <!----> 4 of 11 symbols inside <a data-v-354ee602="" href="/documentation/xcode/adding-identifiable-symbol-names-to-a-crash-report" class="leaf-link" id="-63945549" tabindex="-1" aria-describedby="label--63945549 -67825086 usage--63945549"> Adding Identifiable Symbol Names to a Crash Report <!----> To navigate the symbols, press Up Arrow, Down Arrow, Left Arrow or Right Arrow <button data-v-354ee602="" tabindex="-1" aria-labelledby="-381414635" aria-expanded="false" aria-describedby="label--381414635 -67825086 label-parent--381414635" class="tree-toggle"><svg data-v-7f60a732="" data-v-354ee602="" aria-hidden="true" xmlns="http://www.w3.org/2000/svg" class="svg-icon inline-chevron-right-icon icon-inline chevron" viewBox="0 0 14 14"><path data-v-7f60a732="" d="m4.81347656 13.1269531c.22558594 0 .41015625-.0820312.56738282-.2324219l5.31835942-5.19531245c.1845703-.19140625.2802734-.38964844.2802734-.63574219 0-.23925781-.0888672-.45117187-.2802734-.62890625l-5.31835942-5.20214843c-.15722657-.15039063-.34179688-.23242188-.56738282-.2324218

8-.45800781 0-.81347656.35546875-.81347656.80664062
0 .21875.09570312.43066407.24609375.58789063l4.79199219 4.67578125-
4.79199219
4.6621094c-.15722656.1640625-.24609375.3623047-.24609375.5878906
0
.4511719.35546875.8066406.81347656.8066406z"></path></svg></button>
<div data-v-7334d1b4="" data-v-354ee602="" class="NavigatorLeafIcon
navigator-icon"><svg data-v-7f60a732="" data-v-7334d1b4="" aria-
hidden="true" xmlns="http://www.w3.org/2000/svg" class="svg-icon collection-
icon icon-inline" viewBox="0 0 14 14"><title
data-v-7f60a732="">Collection</title><g data-v-7f60a732=""
transform="translate(2.116699, 4.455566)"><path data-v-7f60a732="" d="M-
1.2412647-0.767793c0.4863523,0,0.8754342-0.3890819,0.8754342-0.8684863
c0-0.4863524-0.3890819-0.8754342-0.8754342-0.8754342S-2.116699-
2.1226318-2.116699-1.6362793
C-2.116699-1.1568749-1.7276171-0.767793-1.2412647-0.767793z
M1.829703-1.0804482h9.490819
c0.3126545,0,0.5627785-0.2431761,0.5627785-0.5558312c0-0.319603-
0.250124-0.5627792-0.5627785-0.5627792H1.829703
c-0.319603,0-0.5627792,0.2431762-0.5627792,0.5627792C1.2669238-
1.3236243,1.5101-1.0804482,1.829703-1.0804482z
M-1.2412647,3.4356809c0.4863523,0,0.8754342-0.3890817,0.8754342-
0.8754342s-0.3890819-0.8754343-0.8754342-0.8754343
S-2.116699,2.0738943-2.116699,2.5602467S-1.7276171,3.4356809-
1.2412647,3.4356809z M1.829703,3.1230259h9.490819
c0.3126545,0,0.5627785-0.2501242,0.5627785-0.5627792s-0.250124-
0.5558312-0.5627785-0.5558312H1.829703
c-0.319603,0-0.5627792,0.243176-
0.5627792,0.5558312S1.5101,3.1230259,1.829703,3.1230259z M-
1.2412647,7.6391549
c0.4863523,0,0.8754342-0.3960299,0.8754342-0.8754344c0-0.4863524-
0.3890819-0.8754339-0.8754342-0.8754339
S-2.116699,6.2773681-2.116699,6.7637205C-2.116699,7.243125-
1.7276171,7.6391549-1.2412647,7.6391549z M1.829703,7.3195519
h9.490819c0.3126545,0,0.5627785-0.2431765,0.5627785-0.5558314c0-
0.319603-0.250124-0.5627789-0.5627785-0.5627789H1.829703
c-0.319603,0-0.5627792,0.243176-
0.5627792,0.5627789C1.2669238,7.0763755,1.5101,7.3195519,1.829703,7.319
5519z"></path></g></svg> <div data-v-354ee602="" class="title-
container"><span data-v-354ee602="" hidden="hidden" id="label-parent--
381414635">, containing 10 symbols<span data-v-354ee602=""
id="label--381414635" hidden="hidden"> 5 of 11 symbols inside <a
data-v-354ee602="" href="/documentation/xcode/identifying-the-cause-of-
common-crashes" class="leaf-link" id="-381414635" tabindex="-1" aria-
describedby="label--381414635 -67825086 label-parent--381414635 usage--
381414635"><p data-v-53c78ce5="" data-v-354ee602=""
class="highlight">Identifying the Cause of Common Crashes</p><!----
> <div class="vue-recycle-scroller__item-view"
style="transform: translateY(1344px);"><div data-v-354ee602="" data-v-
3769e00e="" id="container--562898634" class="navigator-card-item" style="--
nesting-index: 1;"> <span
data-v-354ee602="" hidden="hidden" id="usage--562898634"> To navigate the
symbols, press Up Arrow, Down Arrow, Left Arrow or Right Arrow <div
data-v-354ee602="" class="depth-spacer"><!----> <div data-v-

7334d1b4="" data-v-354ee602="" class="NavigatorLeafIcon navigator-icon"><svg data-v-7f60a732="" data-v-7334d1b4="" aria-hidden="true" xmlns="http://www.w3.org/2000/svg" class="svg-icon article-icon icon-inline" viewBox="0 0 14 14"><g data-v-7f60a732="" transform="translate(3.616699, 1.608398)"><path data-v-7f60a732="" d="M0.0136063,12.3984375H6.948308c1.3516788,0,2.0242538-0.6856346,2.0242538-2.0438433V4.4254899
c0-0.842351-0.0979481-1.2080226-0.6203365-1.7434704L4.7542777-0.9812267
C4.2580094-1.490555,3.8466287-1.6015625,3.1152854-1.6015625H0.0136063c-1.3451493,0-2.0242538,0.6921641-2.0242538,2.0503731
v9.9057837C-2.0106475,11.7193327-1.3380729,12.3984375,0.0136063,12.3984375z M0.0593152,11.3471317
c-0.6725746,0-1.0186567-0.3591423-1.0186567-1.0121269V0.4684002c0-0.6464552,0.346082-1.0186567,1.0251865-1.0186567h2.9057837

v3.7938433c0,0.8227613,0.4113805,1.2276118,1.227612,1.2276118h3.7220149v5.8638062
c0,0.6529846-0.3460822,1.0121269-1.0251865,1.0121269H0.0593152z M4.3167777,3.4851911
c-0.2611938,0-0.3591416-0.1044776-0.3591416-0.3656716v-3.4673507l3.761194,3.8330224H4.3167777z M5.8839421,6.2734375H0.9277854
c-0.2350746,0-0.4113806,0.1763058-0.4113806,0.3983207c0,0.2285452,0.176306,0.404851,0.4113806,0.404851h4.9561567
c0.2285447,0,0.3983207-0.1763058,0.3983207-0.404851C6.2822628,6.4497433,6.1124868,6.2734375,5.8839421,6.2734375z
M5.8839421,8.5523558H0.9277854c-0.2350746,0-0.4113806,0.1828356-0.4113806,0.4113798

c0,0.2220154,0.176306,0.3917913,0.4113806,0.3917913h4.9561567c0.2285447,0,0.3983207-0.169776,0.3983207-0.3917913

C6.2822628,8.7351913,6.1124868,8.5523558,5.8839421,8.5523558z"></path></g></svg> <!----> 6 of 11 symbols inside <a data-v-354ee602="" href="/documentation/xcode/analyzing-a-crash-report" class="leaf-link" id="-562898634" tabindex="-1" aria-describedby="label--562898634 -67825086 usage--562898634"> Analyzing a Crash Report <!----> To navigate the symbols, press Up Arrow, Down Arrow, Left Arrow or Right Arrow <!----> <svg data-v-7f60a732="" data-v-7334d1b4="" aria-hidden="true" xmlns="http://www.w3.org/2000/svg" class="svg-icon article-icon icon-inline"

viewBox="0 0 14 14"><g data-v-7f60a732="" transform="translate(3.616699, 1.608398)"><path data-v-7f60a732="" d="M0.0136063,12.3984375H6.948308c1.3516788,0,2.0242538-0.6856346,2.0242538-2.0438433V4.4254899
c0-0.842351-0.0979481-1.2080226-0.6203365-1.7434704L4.7542777-0.9812267
C4.2580094-1.490555,3.8466287-1.6015625,3.1152854-1.6015625H0.0136063c-1.3451493,0-2.0242538,0.6921641-2.0242538,2.0503731
v9.9057837C-2.0106475,11.7193327-1.3380729,12.3984375,0.0136063,12.3984375z M0.0593152,11.3471317
c-0.6725746,0-1.0186567-0.3591423-1.0186567-1.0121269V0.4684002c0-0.6464552,0.346082-1.0186567,1.0251865-1.0186567h2.9057837

v3.7938433c0,0.8227613,0.4113805,1.2276118,1.227612,1.2276118h3.7220149v5.8638062
c0,0.6529846-0.3460822,1.0121269-1.0251865,1.0121269H0.0593152z M4.3167777,3.4851911
c-0.2611938,0-0.3591416-0.1044776-0.3591416-0.3656716v-3.4673507l3.761194,3.8330224H4.3167777z M5.8839421,6.2734375H0.9277854
c-0.2350746,0-0.4113806,0.1763058-0.4113806,0.3983207c0,0.2285452,0.176306,0.404851,0.4113806,0.404851h4.9561567
c0.2285447,0,0.3983207-0.1763058,0.3983207-0.404851C6.2822628,6.4497433,6.1124868,6.2734375,5.8839421,6.2734375z
M5.8839421,8.5523558H0.9277854c-0.2350746,0-0.4113806,0.1828356-0.4113806,0.4113798

c0,0.2220154,0.176306,0.3917913,0.4113806,0.3917913h4.9561567c0.2285447,0,0.3983207-0.169776,0.3983207-0.3917913

C6.2822628,8.7351913,6.1124868,8.5523558,5.8839421,8.5523558z"></path></g></svg> <!----> 7 of 11 symbols inside <a data-v-354ee602="" href="/documentation/xcode/examining-the-fields-in-a-crash-report" class="leaf-link" id="-1776454030" tabindex="-1" aria-describedby="label--1776454030 -67825086 usage--1776454030"> Examining the Fields in a Crash Report <!----> To navigate the symbols, press Up Arrow, Down Arrow, Left Arrow or Right Arrow <!----> <svg data-v-7f60a732="" data-v-7334d1b4="" aria-hidden="true" xmlns="http://www.w3.org/2000/svg" class="svg-icon article-icon icon-inline" viewBox="0 0 14 14"><g data-v-7f60a732="" transform="translate(3.616699, 1.608398)"><path data-v-7f60a732=""

d="M0.0136063,12.3984375H6.948308c1.3516788,0,2.0242538-0.6856346,2.0242538-2.0438433V4.4254899
c0-0.842351-0.0979481-1.2080226-0.6203365-1.7434704L4.7542777-0.9812267
C4.2580094-1.490555,3.8466287-1.6015625,3.1152854-1.6015625H0.0136063c-1.3451493,0-2.0242538,0.6921641-2.0242538,2.0503731
v9.9057837C-2.0106475,11.7193327-1.3380729,12.3984375,0.0136063,12.3984375z M0.0593152,11.3471317
c-0.6725746,0-1.0186567-0.3591423-1.0186567-1.0121269V0.4684002c0-0.6464552,0.346082-1.0186567,1.0251865-1.0186567h2.9057837

v3.7938433c0,0.8227613,0.4113805,1.2276118,1.227612,1.2276118h3.7220149v5.8638062
c0,0.6529846-0.3460822,1.0121269-1.0251865,1.0121269H0.0593152z M4.3167777,3.4851911
c-0.2611938,0-0.3591416-0.1044776-0.3591416-0.3656716v-3.4673507l3.761194,3.8330224H4.3167777z M5.8839421,6.2734375H0.9277854
c-0.2350746,0-0.4113806,0.1763058-0.4113806,0.3983207c0,0.2285452,0.176306,0.404851,0.4113806,0.404851h4.9561567
c0.2285447,0,0.3983207-0.1763058,0.3983207-0.404851C6.2822628,6.4497433,6.1124868,6.2734375,5.8839421,6.2734375z
M5.8839421,8.5523558H0.9277854c-0.2350746,0-0.4113806,0.1828356-0.4113806,0.4113798

c0,0.2220154,0.176306,0.3917913,0.4113806,0.3917913h4.9561567c0.2285447,0,0.3983207-0.169776,0.3983207-0.3917913

C6.2822628,8.7351913,6.1124868,8.5523558,5.8839421,8.5523558z"></path></g></svg> <!----> 8 of 11 symbols inside <a data-v-354ee602="" href="/documentation/xcode/understanding-the-exception-types-in-a-crash-report" class="leaf-link" id="1707101309" tabindex="-1" aria-describedby="label-1707101309 -67825086 usage-1707101309"> Understanding the Exception Types in a Crash Report <!----> To navigate the symbols, press Up Arrow, Down Arrow, Left Arrow or Right Arrow <!----> <!----> <!----> 9 of 11 symbols inside <h3 data-v-354ee602="" id="-82741711" tabindex="-1" aria-describedby="label--82741711 -67825086 usage--82741711" class="leaf-link"> Device Logs </h3><!----> <div data-v-354ee602="" data-v-3769e00e="" id="container--1273217866"

class="navigator-card-item" style="--nesting-index: 1;"> To navigate the symbols, press Up Arrow, Down Arrow, Left Arrow or Right Arrow <!----> <svg data-v-7f60a732="" data-v-7334d1b4="" aria-hidden="true" xmlns="http://www.w3.org/2000/svg" class="svg-icon article-icon icon-inline" viewBox="0 0 14 14"><g data-v-7f60a732="" transform="translate(3.616699, 1.608398)"><path data-v-7f60a732="" d="M0.0136063,12.3984375H6.948308c1.3516788,0,2.0242538-0.6856346,2.0242538-2.0438433V4.4254899
c0-0.842351-0.0979481-1.2080226-0.6203365-1.7434704L4.7542777-0.9812267
C4.2580094-1.490555,3.8466287-1.6015625,3.1152854-1.6015625H0.0136063c-1.3451493,0-2.0242538,0.6921641-2.0242538,2.0503731
v9.9057837C-2.0106475,11.7193327-1.3380729,12.3984375,0.0136063,12.3984375z M0.0593152,11.3471317
c-0.6725746,0-1.0186567-0.3591423-1.0186567-1.0121269V0.4684002c0-0.6464552,0.346082-1.0186567,1.0251865-1.0186567h2.9057837

v3.7938433c0,0.8227613,0.4113805,1.2276118,1.227612,1.2276118h3.7220149v5.8638062
c0,0.6529846-0.3460822,1.0121269-1.0251865,1.0121269H0.0593152z M4.3167777,3.4851911
c-0.2611938,0-0.3591416-0.1044776-0.3591416-0.3656716v-3.4673507l3.761194,3.8330224H4.3167777z M5.8839421,6.2734375H0.9277854
c-0.2350746,0-0.4113806,0.1763058-0.4113806,0.3983207c0,0.2285452,0.176306,0.404851,0.4113806,0.404851h4.9561567
c0.2285447,0,0.3983207-0.1763058,0.3983207-0.404851C6.2822628,6.4497433,6.1124868,6.2734375,5.8839421,6.2734375z
M5.8839421,8.5523558H0.9277854c-0.2350746,0-0.4113806,0.1828356-0.4113806,0.4113798

c0,0.2220154,0.176306,0.3917913,0.4113806,0.3917913h4.9561567c0.2285447,0,0.3983207-0.169776,0.3983207-0.3917913

C6.2822628,8.7351913,6.1124868,8.5523558,5.8839421,8.5523558z"></path></g></svg> <!----> 10 of 11 symbols inside <a data-v-354ee602="" href="/documentation/xcode/identifying-high-memory-use-with-jetsam-event-reports" class="leaf-link" id="-1273217866" tabindex="-1" aria-describedby="label--1273217866 -67825086 usage--1273217866"> Identifying High-Memory Use with Jetsam Event Reports <!----> To navigate the

symbols, press Up Arrow, Down Arrow, Left Arrow or Right Arrow <!----> <svg data-v-7f60a732="" data-v-7334d1b4="" aria-hidden="true" xmlns="http://www.w3.org/2000/svg" class="svg-icon collection-icon icon-inline" viewBox="0 0 14 14"><title data-v-7f60a732="">Collection</title><g data-v-7f60a732="" transform="translate(2.116699, 4.455566)"><path data-v-7f60a732="" d="M-1.2412647-0.767793c0.4863523,0,0.8754342-0.3890819,0.8754342-0.8684863
c0-0.4863524-0.3890819-0.8754342-0.8754342-0.8754342S-2.116699-2.1226318-2.116699-1.6362793
C-2.116699-1.1568749-1.7276171-0.767793-1.2412647-0.767793z M1.829703-1.0804482h9.490819
c0.3126545,0,0.5627785-0.2431761,0.5627785-0.5558312c0-0.319603-0.250124-0.5627792-0.5627785-0.5627792H1.829703
c-0.319603,0-0.5627792,0.2431762-0.5627792,0.5627792C1.2669238-1.3236243,1.5101-1.0804482,1.829703-1.0804482z
M-1.2412647,3.4356809c0.4863523,0,0.8754342-0.3890817,0.8754342-0.8754342s-0.3890819-0.8754343-0.8754342-0.8754343
S-2.116699,2.0738943-2.116699,2.5602467S-1.7276171,3.4356809-1.2412647,3.4356809z M1.829703,3.1230259h9.490819
c0.3126545,0,0.5627785-0.2501242,0.5627785-0.5627792s-0.250124-0.5558312-0.5627785-0.5558312H1.829703
c-0.319603,0-0.5627792,0.243176-0.5627792,0.5558312S1.5101,3.1230259,1.829703,3.1230259z M-1.2412647,7.6391549
c0.4863523,0,0.8754342-0.3960299,0.8754342-0.8754344c0-0.4863524-0.3890819-0.8754339-0.8754342-0.8754339
S-2.116699,6.2773681-2.116699,6.7637205C-2.116699,7.243125-1.7276171,7.6391549-1.2412647,7.6391549z M1.829703,7.3195519
h9.490819c0.3126545,0,0.5627785-0.2431765,0.5627785-0.5558314c0-0.319603-0.250124-0.5627789-0.5627785-0.5627789H1.829703
c-0.319603,0-0.5627792,0.243176-0.5627792,0.5627789C1.2669238,7.0763755,1.5101,7.3195519,1.829703,7.3195519z"></path></g></svg> <!----> 11 of 11 symbols inside <a data-v-354ee602="" href="/documentation/os/logging" class="leaf-link" id="-965392962" tabindex="-1" aria-describedby="label--965392962 -67825086 usage--965392962"> Logging <!----> To navigate the symbols, press Up Arrow, Down Arrow, Left Arrow or Right Arrow <!----> <!----> <!----> 38 of 74 symbols inside <h3 data-v-354ee602="" id="-1788968339" tabindex="-1" aria-describedby="label--1788968339 <root> usage--1788968339" class="leaf-link"> Testing </h3><!----> <div class="vue-recycle-scroller__item-view"

style="transform: translateY(1568px);"> To navigate the symbols, press Up Arrow, Down Arrow, Left Arrow or Right Arrow <!----> <svg data-v-7f60a732="" data-v-7334d1b4="" aria-hidden="true" xmlns="http://www.w3.org/2000/svg" class="svg-icon article-icon icon-inline" viewBox="0 0 14 14"><g data-v-7f60a732="" transform="translate(3.616699, 1.608398)"><path data-v-7f60a732="" d="M0.0136063,12.3984375H6.948308c1.3516788,0,2.0242538-0.6856346,2.0242538-2.0438433V4.4254899
c0-0.842351-0.0979481-1.2080226-0.6203365-1.7434704L4.7542777-0.9812267
C4.2580094-1.490555,3.8466287-1.6015625,3.1152854-1.6015625H0.0136063c-1.3451493,0-2.0242538,0.6921641-2.0242538,2.0503731
v9.9057837C-2.0106475,11.7193327-1.3380729,12.3984375,0.0136063,12.3984375z M0.0593152,11.3471317
c-0.6725746,0-1.0186567-0.3591423-1.0186567-1.0121269V0.4684002c0-0.6464552,0.346082-1.0186567,1.0251865-1.0186567h2.9057837

v3.7938433c0,0.8227613,0.4113805,1.2276118,1.227612,1.2276118h3.7220149v5.8638062
c0,0.6529846-0.3460822,1.0121269-1.0251865,1.0121269H0.0593152z M4.3167777,3.4851911
c-0.2611938,0-0.3591416-0.1044776-0.3591416-0.3656716v-3.4673507l3.761194,3.8330224H4.3167777z M5.8839421,6.2734375H0.9277854
c-0.2350746,0-0.4113806,0.1763058-0.4113806,0.3983207c0,0.2285452,0.176306,0.404851,0.4113806,0.404851h4.9561567
c0.2285447,0,0.3983207-0.1763058,0.3983207-0.404851C6.2822628,6.4497433,6.1124868,6.2734375,5.8839421,6.2734375z
M5.8839421,8.5523558H0.9277854c-0.2350746,0-0.4113806,0.1828356-0.4113806,0.4113798

c0,0.2220154,0.176306,0.3917913,0.4113806,0.3917913h4.9561567c0.2285447,0,0.3983207-0.169776,0.3983207-0.3917913

C6.2822628,8.7351913,6.1124868,8.5523558,5.8839421,8.5523558z"></path></g></svg> <!----> 39 of 74 symbols inside <a data-v-354ee602="" href="/documentation/xcode/testing-your-apps-in-xcode" class="leaf-link" id="-97619179" tabindex="-1" aria-describedby="label--97619179 <root> usage--97619179"> Testing Your Apps in Xcode <!----> <span data-v-354ee602=""

hidden="hidden" id="usage--1228936215"> To navigate the symbols, press Up Arrow, Down Arrow, Left Arrow or Right Arrow <!----> <svg data-v-7f60a732="" data-v-7334d1b4="" aria-hidden="true" xmlns="http://www.w3.org/2000/svg" class="svg-icon article-icon icon-inline" viewBox="0 0 14 14"><g data-v-7f60a732="" transform="translate(3.616699, 1.608398)"><path data-v-7f60a732="" d="M0.0136063,12.3984375H6.948308c1.3516788,0,2.0242538-0.6856346,2.0242538-2.0438433V4.4254899
c0-0.842351-0.0979481-1.2080226-0.6203365-1.7434704L4.7542777-0.9812267
C4.2580094-1.490555,3.8466287-1.6015625,3.1152854-1.6015625H0.0136063c-1.3451493,0-2.0242538,0.6921641-2.0242538,2.0503731
v9.9057837C-2.0106475,11.7193327-1.3380729,12.3984375,0.0136063,12.3984375z M0.0593152,11.3471317
c-0.6725746,0-1.0186567-0.3591423-1.0186567-1.0121269V0.4684002c0-0.6464552,0.346082-1.0186567,1.0251865-1.0186567h2.9057837

v3.7938433c0,0.8227613,0.4113805,1.2276118,1.227612,1.2276118h3.7220149v5.8638062
c0,0.6529846-0.3460822,1.0121269-1.0251865,1.0121269H0.0593152z M4.3167777,3.4851911
c-0.2611938,0-0.3591416-0.1044776-0.3591416-0.3656716v-3.4673507l3.761194,3.8330224H4.3167777z M5.8839421,6.2734375H0.9277854
c-0.2350746,0-0.4113806,0.1763058-0.4113806,0.3983207c0,0.2285452,0.176306,0.404851,0.4113806,0.404851h4.9561567
c0.2285447,0,0.3983207-0.1763058,0.3983207-0.404851C6.2822628,6.4497433,6.1124868,6.2734375,5.8839421,6.2734375z
M5.8839421,8.5523558H0.9277854c-0.2350746,0-0.4113806,0.1828356-0.4113806,0.4113798

c0,0.2220154,0.176306,0.3917913,0.4113806,0.3917913h4.9561567c0.2285447,0,0.3983207-0.169776,0.3983207-0.3917913

C6.2822628,8.7351913,6.1124868,8.5523558,5.8839421,8.5523558z"></path></g></svg> <!----> 40 of 74 symbols inside <a data-v-354ee602="" href="/documentation/xcode/adding-unit-tests-to-your-existing-project" class="leaf-link" id="-1228936215" tabindex="-1" aria-describedby="label--1228936215 <root> usage--1228936215"> Adding Unit Tests to Your Existing Project <!----> To navigate the symbols, press Up Arrow, Down Arrow, Left Arrow or Right Arrow <!----> <div data-v-7334d1b4="" data-v-354ee602=""

class="NavigatorLeafIcon navigator-icon"><svg data-v-7f60a732="" data-v-7334d1b4="" aria-hidden="true" xmlns="http://www.w3.org/2000/svg" class="svg-icon article-icon icon-inline" viewBox="0 0 14 14"><g data-v-7f60a732="" transform="translate(3.616699, 1.608398)"><path data-v-7f60a732="" d="M0.0136063,12.3984375H6.948308c1.3516788,0,2.0242538-0.6856346,2.0242538-2.0438433V4.4254899
c0-0.842351-0.0979481-1.2080226-0.6203365-1.7434704L4.7542777-0.9812267
C4.2580094-1.490555,3.8466287-1.6015625,3.1152854-1.6015625H0.0136063c-1.3451493,0-2.0242538,0.6921641-2.0242538,2.0503731
v9.9057837C-2.0106475,11.7193327-1.3380729,12.3984375,0.0136063,12.3984375z M0.0593152,11.3471317
c-0.6725746,0-1.0186567-0.3591423-1.0186567-1.0121269V0.4684002c0-0.6464552,0.346082-1.0186567,1.0251865-1.0186567h2.9057837

v3.7938433c0,0.8227613,0.4113805,1.2276118,1.227612,1.2276118h3.7220149v5.8638062
c0,0.6529846-0.3460822,1.0121269-1.0251865,1.0121269H0.0593152z M4.3167777,3.4851911
c-0.2611938,0-0.3591416-0.1044776-0.3591416-0.3656716v-3.4673507l3.761194,3.8330224H4.3167777z M5.8839421,6.2734375H0.9277854
c-0.2350746,0-0.4113806,0.1763058-0.4113806,0.3983207c0,0.2285452,0.176306,0.404851,0.4113806,0.404851h4.9561567
c0.2285447,0,0.3983207-0.1763058,0.3983207-0.404851C6.2822628,6.4497433,6.1124868,6.2734375,5.8839421,6.2734375z
M5.8839421,8.5523558H0.9277854c-0.2350746,0-0.4113806,0.1828356-0.4113806,0.4113798

c0,0.2220154,0.176306,0.3917913,0.4113806,0.3917913h4.9561567c0.2285447,0,0.3983207-0.169776,0.3983207-0.3917913

C6.2822628,8.7351913,6.1124868,8.5523558,5.8839421,8.5523558z"></path></g></svg> <!----> 41 of 74 symbols inside <a data-v-354ee602="" href="/documentation/xcode/setting-up-storekit-testing-in-xcode" class="leaf-link" id="134735530" tabindex="-1" aria-describedby="label-134735530 <root> usage-134735530"> Setting Up StoreKit Testing in Xcode <!----> To navigate the symbols, press Up Arrow, Down Arrow, Left Arrow or Right Arrow <!----> <!----> <!----> 42 of 74 symbols inside <h3 data-v-354ee602="" id="-1788968314" tabindex="-1" aria-describedby="label--1788968314 <root> usage--1788968314" class="leaf-link"><p data-v-

53c78ce5="" data-v-354ee602="" class="highlight">Continuous Integration and Delivery</p></h3><!----> To navigate the symbols, press Up Arrow, Down Arrow, Left Arrow or Right Arrow <button data-v-354ee602="" tabindex="-1" aria-labelledby="1942067906" aria-expanded="false" aria-describedby="label-1942067906 <root> label-parent-1942067906" class="tree-toggle"><svg data-v-7f60a732="" data-v-354ee602="" aria-hidden="true" xmlns="http://www.w3.org/2000/svg" class="svg-icon inline-chevron-right-icon icon-inline chevron" viewBox="0 0 14 14"><path data-v-7f60a732="" d="m4.81347656 13.1269531c.22558594
0 .41015625-.0820312.56738282-.2324219l5.31835942-5.19531245c.1845703-.19140625.2802734-.38964844.2802734-.63574219
0-.23925781-.0888672-.45117187-.2802734-.62890625l-5.31835942-5.20214843c-.15722657-.15039063-.34179688-.23242188-.56738282-.23242188-.45800781 0-.81347656.35546875-.81347656.80664062
0 .21875.09570312.43066407.24609375.58789063l4.79199219 4.67578125-4.79199219
4.6621094c-.15722656.1640625-.24609375.3623047-.24609375.5878906
0
.4511719.35546875.8066406.81347656.8066406z"></path></svg></button> <svg data-v-7f60a732="" data-v-7334d1b4="" aria-hidden="true" xmlns="http://www.w3.org/2000/svg" class="svg-icon collection-icon icon-inline" viewBox="0 0 14 14"><title data-v-7f60a732="">Collection</title><g data-v-7f60a732="" transform="translate(2.116699, 4.455566)"><path data-v-7f60a732="" d="M-1.2412647-0.767793c0.4863523,0,0.8754342-0.3890819,0.8754342-0.8684863
c0-0.4863524-0.3890819-0.8754342-0.8754342-0.8754342S-2.116699-2.1226318-2.116699-1.6362793
C-2.116699-1.1568749-1.7276171-0.767793-1.2412647-0.767793z M1.829703-1.0804482h9.490819
c0.3126545,0,0.5627785-0.2431761,0.5627785-0.5558312c0-0.319603-0.250124-0.5627792-0.5627785-0.5627792H1.829703
c-0.319603,0-0.5627792,0.2431762-0.5627792,0.5627792C1.2669238-1.3236243,1.5101-1.0804482,1.829703-1.0804482z
M-1.2412647,3.4356809c0.4863523,0,0.8754342-0.3890817,0.8754342-0.8754342s-0.3890819-0.8754343-0.8754342-0.8754343
S-2.116699,2.0738943-2.116699,2.5602467S-1.7276171,3.4356809-1.2412647,3.4356809z M1.829703,3.1230259h9.490819
c0.3126545,0,0.5627785-0.2501242,0.5627785-0.5627792s-0.250124-0.5558312-0.5627785-0.5558312H1.829703
c-0.319603,0-0.5627792,0.243176-0.5627792,0.5558312S1.5101,3.1230259,1.829703,3.1230259z M-1.2412647,7.6391549
c0.4863523,0,0.8754342-0.3960299,0.8754342-0.8754344c0-0.4863524-0.3890819-0.8754339-0.8754342-0.8754339
S-2.116699,6.2773681-2.116699,6.7637205C-2.116699,7.243125-1.7276171,7.6391549-1.2412647,7.6391549z M1.829703,7.3195519

h9.490819c0.3126545,0,0.5627785-0.2431765,0.5627785-0.5558314c0-0.319603-0.250124-0.5627789-0.5627785-0.5627789H1.829703
c-0.319603,0-0.5627792,0.243176-0.5627792,0.5627789C1.2669238,7.0763755,1.5101,7.3195519,1.829703,7.3195519z"></path></g></svg> , containing 29 symbols 43 of 74 symbols inside <a data-v-354ee602="" href="/documentation/xcode/xcode-cloud" class="leaf-link" id="1942067906" tabindex="-1" aria-describedby="label-1942067906 <root> label-parent-1942067906 usage-1942067906"> Xcode Cloud <!----> To navigate the symbols, press Up Arrow, Down Arrow, Left Arrow or Right Arrow <!----> <!----> <!----> 44 of 74 symbols inside <h3 data-v-354ee602="" id="-1788968312" tabindex="-1" aria-describedby="label--1788968312 <root> usage--1788968312" class="leaf-link"> Distribution </h3><!----> To navigate the symbols, press Up Arrow, Down Arrow, Left Arrow or Right Arrow <!----> <svg data-v-7f60a732="" data-v-7334d1b4="" aria-hidden="true" xmlns="http://www.w3.org/2000/svg" class="svg-icon article-icon icon-inline" viewBox="0 0 14 14"><g data-v-7f60a732="" transform="translate(3.616699, 1.608398)"><path data-v-7f60a732="" d="M0.0136063,12.3984375H6.948308c1.3516788,0,2.0242538-0.6856346,2.0242538-2.0438433V4.4254899
c0-0.842351-0.0979481-1.2080226-0.6203365-1.7434704L4.7542777-0.9812267
C4.2580094-1.490555,3.8466287-1.6015625,3.1152854-1.6015625H0.0136063c-1.3451493,0-2.0242538,0.6921641-2.0242538,2.0503731
v9.9057837C-2.0106475,11.7193327-1.3380729,12.3984375,0.0136063,12.3984375z M0.0593152,11.3471317
c-0.6725746,0-1.0186567-0.3591423-1.0186567-1.0121269V0.4684002c0-0.6464552,0.346082-1.0186567,1.0251865-1.0186567h2.9057837

v3.7938433c0,0.8227613,0.4113805,1.2276118,1.227612,1.2276118h3.7220149v5.8638062
c0,0.6529846-0.3460822,1.0121269-1.0251865,1.0121269H0.0593152z M4.3167777,3.4851911

c-0.2611938,0-0.3591416-0.1044776-0.3591416-0.3656716v-
3.4673507l3.761194,3.8330224H4.3167777z
M5.8839421,6.2734375H0.9277854
c-0.2350746,0-0.4113806,0.1763058-
0.4113806,0.3983207c0,0.2285452,0.176306,0.404851,0.4113806,0.404851h4.
9561567
c0.2285447,0,0.3983207-0.1763058,0.3983207-
0.404851C6.2822628,6.4497433,6.1124868,6.2734375,5.8839421,6.2734375z
M5.8839421,8.5523558H0.9277854c-0.2350746,0-0.4113806,0.1828356-
0.4113806,0.4113798

c0,0.2220154,0.176306,0.3917913,0.4113806,0.3917913h4.9561567c0.228544
7,0,0.3983207-0.169776,0.3983207-0.3917913

C6.2822628,8.7351913,6.1124868,8.5523558,5.8839421,8.5523558z"></path>
</g></svg> <!----
> 45 of
74 symbols inside <a data-v-354ee602=""
href="/documentation/xcode/preparing-your-app-for-distribution" class="leaf-
link" id="1259551116" tabindex="-1" aria-describedby="label-1259551116
<root> usage-1259551116"><p data-v-53c78ce5="" data-v-354ee602=""
class="highlight">Preparing Your App for
Distribution</p><!----> <div class="vue-
recycle-scroller__item-view" style="transform: translateY(1792px);"><div data-
v-354ee602="" data-v-3769e00e="" id="container--631267973"
class="navigator-card-item" style="--nesting-index: 0;"><div data-v-
354ee602="" class="head-wrapper"><span data-v-354ee602=""
hidden="hidden" id="usage--631267973"> To navigate the symbols, press Up
Arrow, Down Arrow, Left Arrow or Right Arrow <div data-v-354ee602=""
class="depth-spacer"><!----> <div data-v-7334d1b4="" data-v-
354ee602="" class="NavigatorLeafIcon navigator-icon"><svg data-v-
7f60a732="" data-v-7334d1b4="" aria-hidden="true"
xmlns="http://www.w3.org/2000/svg" class="svg-icon article-icon icon-inline"
viewBox="0 0 14 14"><g data-v-7f60a732="" transform="translate(3.616699,
1.608398)"><path data-v-7f60a732=""
d="M0.0136063,12.3984375H6.948308c1.3516788,0,2.0242538-
0.6856346,2.0242538-2.0438433V4.4254899
c0-0.842351-0.0979481-1.2080226-0.6203365-1.7434704L4.7542777-
0.9812267
C4.2580094-1.490555,3.8466287-1.6015625,3.1152854-
1.6015625H0.0136063c-1.3451493,0-2.0242538,0.6921641-
2.0242538,2.0503731
v9.9057837C-2.0106475,11.7193327-
1.3380729,12.3984375,0.0136063,12.3984375z M0.0593152,11.3471317
c-0.6725746,0-1.0186567-0.3591423-1.0186567-1.0121269V0.4684002c0-
0.6464552,0.346082-1.0186567,1.0251865-1.0186567h2.9057837

v3.7938433c0,0.8227613,0.4113805,1.2276118,1.227612,1.2276118h3.722014
9v5.8638062
c0,0.6529846-0.3460822,1.0121269-1.0251865,1.0121269H0.0593152z
M4.3167777,3.4851911
c-0.2611938,0-0.3591416-0.1044776-0.3591416-0.3656716v-
3.4673507l3.761194,3.8330224H4.3167777z
M5.8839421,6.2734375H0.9277854

c-0.2350746,0-0.4113806,0.1763058-
0.4113806,0.3983207c0,0.2285452,0.176306,0.404851,0.4113806,0.404851h4.
9561567
c0.2285447,0,0.3983207-0.1763058,0.3983207-
0.404851C6.2822628,6.4497433,6.1124868,6.2734375,5.8839421,6.2734375z
M5.8839421,8.5523558H0.9277854c-0.2350746,0-0.4113806,0.1828356-
0.4113806,0.4113798

c0,0.2220154,0.176306,0.3917913,0.4113806,0.3917913h4.9561567c0.228544
7,0,0.3983207-0.169776,0.3983207-0.3917913

C6.2822628,8.7351913,6.1124868,8.5523558,5.8839421,8.5523558z"></path>
</g></svg> <!----
> 46 of 74
symbols inside <a data-v-354ee602=""
href="/documentation/security/notarizing_macos_software_before_distribution"
class="leaf-link" id="-631267973" tabindex="-1" aria-describedby="label--
631267973 <root> usage--631267973"><p data-v-53c78ce5="" data-v-
354ee602="" class="highlight">Notarizing macOS software before
distribution</p><!----> <div class="vue-
recycle-scroller__item-view" style="transform: translateY(1824px);"><div data-
v-354ee602="" data-v-3769e00e="" id="container--1535883342"
class="navigator-card-item" style="--nesting-index: 0;"><div data-v-
354ee602="" class="head-wrapper"><span data-v-354ee602=""
hidden="hidden" id="usage--1535883342"> To navigate the symbols, press Up
Arrow, Down Arrow, Left Arrow or Right Arrow <div data-v-354ee602=""
class="depth-spacer"><!----> <div data-v-7334d1b4="" data-v-
354ee602="" class="NavigatorLeafIcon navigator-icon"><svg data-v-
7f60a732="" data-v-7334d1b4="" aria-hidden="true"
xmlns="http://www.w3.org/2000/svg" class="svg-icon article-icon icon-inline"
viewBox="0 0 14 14"><g data-v-7f60a732="" transform="translate(3.616699,
1.608398)"><path data-v-7f60a732=""
d="M0.0136063,12.3984375H6.948308c1.3516788,0,2.0242538-
0.6856346,2.0242538-2.0438433V4.4254899
c0-0.842351-0.0979481-1.2080226-0.6203365-1.7434704L4.7542777-
0.9812267
C4.2580094-1.490555,3.8466287-1.6015625,3.1152854-
1.6015625H0.0136063c-1.3451493,0-2.0242538,0.6921641-
2.0242538,2.0503731
v9.9057837C-2.0106475,11.7193327-
1.3380729,12.3984375,0.0136063,12.3984375z M0.0593152,11.3471317
c-0.6725746,0-1.0186567-0.3591423-1.0186567-1.0121269V0.4684002c0-
0.6464552,0.346082-1.0186567,1.0251865-1.0186567h2.9057837

v3.7938433c0,0.8227613,0.4113805,1.2276118,1.227612,1.2276118h3.722014
9v5.8638062
c0,0.6529846-0.3460822,1.0121269-1.0251865,1.0121269H0.0593152z
M4.3167777,3.4851911
c-0.2611938,0-0.3591416-0.1044776-0.3591416-0.3656716v-
3.4673507l3.761194,3.8330224H4.3167777z
M5.8839421,6.2734375H0.9277854
c-0.2350746,0-0.4113806,0.1763058-
0.4113806,0.3983207c0,0.2285452,0.176306,0.404851,0.4113806,0.404851h4.
9561567

c0.2285447,0,0.3983207-0.1763058,0.3983207-0.404851C6.2822628,6.4497433,6.1124868,6.2734375,5.8839421,6.2734375z M5.8839421,8.5523558H0.9277854c-0.2350746,0-0.4113806,0.1828356-0.4113806,0.4113798

c0,0.2220154,0.176306,0.3917913,0.4113806,0.3917913h4.9561567c0.2285447,0,0.3983207-0.169776,0.3983207-0.3917913

C6.2822628,8.7351913,6.1124868,8.5523558,5.8839421,8.5523558z"></path></g></svg> <!----> 47 of 74 symbols inside <a data-v-354ee602="" href="/documentation/xcode/distributing-your-app-for-beta-testing-and-releases" class="leaf-link" id="-1535883342" tabindex="-1" aria-describedby="label--1535883342 <root> usage--1535883342"> Distributing Your App for Beta Testing and Releases <!----> To navigate the symbols, press Up Arrow, Down Arrow, Left Arrow or Right Arrow <!----> <svg data-v-7f60a732="" data-v-7334d1b4="" aria-hidden="true" xmlns="http://www.w3.org/2000/svg" class="svg-icon article-icon icon-inline" viewBox="0 0 14 14"><g data-v-7f60a732="" transform="translate(3.616699, 1.608398)"><path data-v-7f60a732="" d="M0.0136063,12.3984375H6.948308c1.3516788,0,2.0242538-0.6856346,2.0242538-2.0438433V4.4254899 c0-0.842351-0.0979481-1.2080226-0.6203365-1.7434704L4.7542777-0.9812267 C4.2580094-1.490555,3.8466287-1.6015625,3.1152854-1.6015625H0.0136063c-1.3451493,0-2.0242538,0.6921641-2.0242538,2.0503731 v9.9057837C-2.0106475,11.7193327-1.3380729,12.3984375,0.0136063,12.3984375z M0.0593152,11.3471317 c-0.6725746,0-1.0186567-0.3591423-1.0186567-1.0121269V0.4684002c0-0.6464552,0.346082-1.0186567,1.0251865-1.0186567h2.9057837

v3.7938433c0,0.8227613,0.4113805,1.2276118,1.227612,1.2276118h3.7220149v5.8638062 c0,0.6529846-0.3460822,1.0121269-1.0251865,1.0121269H0.0593152z M4.3167777,3.4851911 c-0.2611938,0-0.3591416-0.1044776-0.3591416-0.3656716v-3.4673507l3.761194,3.8330224H4.3167777z M5.8839421,6.2734375H0.9277854 c-0.2350746,0-0.4113806,0.1763058-0.4113806,0.3983207c0,0.2285452,0.176306,0.404851,0.4113806,0.404851h4.9561567 c0.2285447,0,0.3983207-0.1763058,0.3983207-0.404851C6.2822628,6.4497433,6.1124868,6.2734375,5.8839421,6.2734375z

M5.8839421,8.5523558H0.9277854c-0.2350746,0-0.4113806,0.1828356-0.4113806,0.4113798

c0,0.2220154,0.176306,0.3917913,0.4113806,0.3917913h4.9561567c0.2285447,0,0.3983207-0.169776,0.3983207-0.3917913

C6.2822628,8.7351913,6.1124868,8.5523558,5.8839421,8.5523558z"></path></g></svg> <!----> 48 of 74 symbols inside <a data-v-354ee602="" href="/documentation/xcode/distributing-your-app-to-registered-devices" class="leaf-link" id="-2017702681" tabindex="-1" aria-describedby="label--2017702681 <root> usage--2017702681"> Distributing Your App to Registered Devices <!----> To navigate the symbols, press Up Arrow, Down Arrow, Left Arrow or Right Arrow <!----> <svg data-v-7f60a732="" data-v-7334d1b4="" aria-hidden="true" xmlns="http://www.w3.org/2000/svg" class="svg-icon article-icon icon-inline" viewBox="0 0 14 14"><g data-v-7f60a732="" transform="translate(3.616699, 1.608398)"><path data-v-7f60a732="" d="M0.0136063,12.3984375H6.948308c1.3516788,0,2.0242538-0.6856346,2.0242538-2.0438433V4.4254899
c0-0.842351-0.0979481-1.2080226-0.6203365-1.7434704L4.7542777-0.9812267
C4.2580094-1.490555,3.8466287-1.6015625,3.1152854-1.6015625H0.0136063c-1.3451493,0-2.0242538,0.6921641-2.0242538,2.0503731
v9.9057837C-2.0106475,11.7193327-1.3380729,12.3984375,0.0136063,12.3984375z M0.0593152,11.3471317
c-0.6725746,0-1.0186567-0.3591423-1.0186567-1.0121269V0.4684002c0-0.6464552,0.346082-1.0186567,1.0251865-1.0186567h2.9057837

v3.7938433c0,0.8227613,0.4113805,1.2276118,1.227612,1.2276118h3.7220149v5.8638062
c0,0.6529846-0.3460822,1.0121269-1.0251865,1.0121269H0.0593152z M4.3167777,3.4851911
c-0.2611938,0-0.3591416-0.1044776-0.3591416-0.3656716v-3.4673507l3.761194,3.8330224H4.3167777z M5.8839421,6.2734375H0.9277854
c-0.2350746,0-0.4113806,0.1763058-0.4113806,0.3983207c0,0.2285452,0.176306,0.404851,0.4113806,0.404851h4.9561567
c0.2285447,0,0.3983207-0.1763058,0.3983207-0.404851C6.2822628,6.4497433,6.1124868,6.2734375,5.8839421,6.2734375z
M5.8839421,8.5523558H0.9277854c-0.2350746,0-0.4113806,0.1828356-0.4113806,0.4113798

c0,0.2220154,0.176306,0.3917913,0.4113806,0.3917913h4.9561567c0.2285447,0,0.3983207-0.169776,0.3983207-0.3917913

C6.2822628,8.7351913,6.1124868,8.5523558,5.8839421,8.5523558z"></path></g></svg> <!----> 49 of 74 symbols inside <a data-v-354ee602="" href="/documentation/xcode/using-the-latest-code-signature-format" class="leaf-link" id="-1807968156" tabindex="-1" aria-describedby="label--1807968156 <root> usage--1807968156"> Using the Latest Code Signature Format <!----> To navigate the symbols, press Up Arrow, Down Arrow, Left Arrow or Right Arrow <!----> <svg data-v-7f60a732="" data-v-7334d1b4="" aria-hidden="true" xmlns="http://www.w3.org/2000/svg" class="svg-icon article-icon icon-inline" viewBox="0 0 14 14"><g data-v-7f60a732="" transform="translate(3.616699, 1.608398)"><path data-v-7f60a732="" d="M0.0136063,12.3984375H6.948308c1.3516788,0,2.0242538-0.6856346,2.0242538-2.0438433V4.4254899
c0-0.842351-0.0979481-1.2080226-0.6203365-1.7434704L4.7542777-0.9812267
C4.2580094-1.490555,3.8466287-1.6015625,3.1152854-1.6015625H0.0136063c-1.3451493,0-2.0242538,0.6921641-2.0242538,2.0503731
v9.9057837C-2.0106475,11.7193327-1.3380729,12.3984375,0.0136063,12.3984375z M0.0593152,11.3471317
c-0.6725746,0-1.0186567-0.3591423-1.0186567-1.0121269V0.4684002c0-0.6464552,0.346082-1.0186567,1.0251865-1.0186567h2.9057837

v3.7938433c0,0.8227613,0.4113805,1.2276118,1.227612,1.2276118h3.7220149v5.8638062
c0,0.6529846-0.3460822,1.0121269-1.0251865,1.0121269H0.0593152z M4.3167777,3.4851911
c-0.2611938,0-0.3591416-0.1044776-0.3591416-0.3656716v-3.4673507l3.761194,3.8330224H4.3167777z M5.8839421,6.2734375H0.9277854
c-0.2350746,0-0.4113806,0.1763058-0.4113806,0.3983207c0,0.2285452,0.176306,0.404851,0.4113806,0.404851h4.9561567
c0.2285447,0,0.3983207-0.1763058,0.3983207-0.404851C6.2822628,6.4497433,6.1124868,6.2734375,5.8839421,6.2734375z
M5.8839421,8.5523558H0.9277854c-0.2350746,0-0.4113806,0.1828356-0.4113806,0.4113798

c0,0.2220154,0.176306,0.3917913,0.4113806,0.3917913h4.9561567c0.2285447,0,0.3983207-0.169776,0.3983207-0.3917913

C6.2822628,8.7351913,6.1124868,8.5523558,5.8839421,8.5523558z"></path>
</g></svg> <!----
> 50 of
74 symbols inside <a data-v-354ee602=""
href="/documentation/xcode/testing-a-release-build" class="leaf-link" id="-
1556812969" tabindex="-1" aria-describedby="label--1556812969 <root>
usage--1556812969"><p data-v-53c78ce5="" data-v-354ee602=""
class="highlight">Testing a Release
Build</p><!----> <div class="vue-recycle-
scroller__item-view" style="transform: translateY(1952px);"><div data-v-
354ee602="" data-v-3769e00e="" id="container-2086981204"
class="navigator-card-item" style="--nesting-index: 0;"><div data-v-
354ee602="" class="head-wrapper"><span data-v-354ee602=""
hidden="hidden" id="usage-2086981204"> To navigate the symbols, press Up
Arrow, Down Arrow, Left Arrow or Right Arrow <div data-v-354ee602=""
class="depth-spacer"><!----> <div data-v-7334d1b4="" data-v-
354ee602="" class="NavigatorLeafIcon navigator-icon"><svg data-v-
7f60a732="" data-v-7334d1b4="" aria-hidden="true"
xmlns="http://www.w3.org/2000/svg" class="svg-icon article-icon icon-inline"
viewBox="0 0 14 14"><g data-v-7f60a732="" transform="translate(3.616699,
1.608398)"><path data-v-7f60a732=""
d="M0.0136063,12.3984375H6.948308c1.3516788,0,2.0242538-
0.6856346,2.0242538-2.0438433V4.4254899
c0-0.842351-0.0979481-1.2080226-0.6203365-1.7434704L4.7542777-
0.9812267
C4.2580094-1.490555,3.8466287-1.6015625,3.1152854-
1.6015625H0.0136063c-1.3451493,0-2.0242538,0.6921641-
2.0242538,2.0503731
v9.9057837C-2.0106475,11.7193327-
1.3380729,12.3984375,0.0136063,12.3984375z M0.0593152,11.3471317
c-0.6725746,0-1.0186567-0.3591423-1.0186567-1.0121269V0.4684002c0-
0.6464552,0.346082-1.0186567,1.0251865-1.0186567h2.9057837

v3.7938433c0,0.8227613,0.4113805,1.2276118,1.227612,1.2276118h3.722014
9v5.8638062
c0,0.6529846-0.3460822,1.0121269-1.0251865,1.0121269H0.0593152z
M4.3167777,3.4851911
c-0.2611938,0-0.3591416-0.1044776-0.3591416-0.3656716v-
3.4673507l3.761194,3.8330224H4.3167777z
M5.8839421,6.2734375H0.9277854
c-0.2350746,0-0.4113806,0.1763058-
0.4113806,0.3983207c0,0.2285452,0.176306,0.404851,0.4113806,0.404851h4.
9561567
c0.2285447,0,0.3983207-0.1763058,0.3983207-
0.404851C6.2822628,6.4497433,6.1124868,6.2734375,5.8839421,6.2734375z
M5.8839421,8.5523558H0.9277854c-0.2350746,0-0.4113806,0.1828356-
0.4113806,0.4113798

c0,0.2220154,0.176306,0.3917913,0.4113806,0.3917913h4.9561567c0.228544
7,0,0.3983207-0.169776,0.3983207-0.3917913

C6.2822628,8.7351913,6.1124868,8.5523558,5.8839421,8.5523558z"></path>
</g></svg> <!----

> 51 of 74 symbols inside <a data-v-354ee602="" href="/documentation/xcode/testing-a-beta-os" class="leaf-link" id="2086981204" tabindex="-1" aria-describedby="label-2086981204 <root> usage-2086981204"> Testing a Beta OS <!----> To navigate the symbols, press Up Arrow, Down Arrow, Left Arrow or Right Arrow <!----> <svg data-v-7f60a732="" data-v-7334d1b4="" aria-hidden="true" xmlns="http://www.w3.org/2000/svg" class="svg-icon article-icon icon-inline" viewBox="0 0 14 14"><g data-v-7f60a732="" transform="translate(3.616699, 1.608398)"><path data-v-7f60a732="" d="M0.0136063,12.3984375H6.948308c1.3516788,0,2.0242538-0.6856346,2.0242538-2.0438433V4.4254899
c0-0.842351-0.0979481-1.2080226-0.6203365-1.7434704L4.7542777-0.9812267
C4.2580094-1.490555,3.8466287-1.6015625,3.1152854-1.6015625H0.0136063c-1.3451493,0-2.0242538,0.6921641-2.0242538,2.0503731
v9.9057837C-2.0106475,11.7193327-1.3380729,12.3984375,0.0136063,12.3984375z M0.0593152,11.3471317
c-0.6725746,0-1.0186567-0.3591423-1.0186567-1.0121269V0.4684002c0-0.6464552,0.346082-1.0186567,1.0251865-1.0186567h2.9057837

v3.7938433c0,0.8227613,0.4113805,1.2276118,1.227612,1.2276118h3.7220149v5.8638062
c0,0.6529846-0.3460822,1.0121269-1.0251865,1.0121269H0.0593152z M4.3167777,3.4851911
c-0.2611938,0-0.3591416-0.1044776-0.3591416-0.3656716v-3.4673507l3.761194,3.8330224H4.3167777z M5.8839421,6.2734375H0.9277854
c-0.2350746,0-0.4113806,0.1763058-0.4113806,0.3983207c0,0.2285452,0.176306,0.404851,0.4113806,0.404851h4.9561567
c0.2285447,0,0.3983207-0.1763058,0.3983207-0.404851C6.2822628,6.4497433,6.1124868,6.2734375,5.8839421,6.2734375z
M5.8839421,8.5523558H0.9277854c-0.2350746,0-0.4113806,0.1828356-0.4113806,0.4113798

c0,0.2220154,0.176306,0.3917913,0.4113806,0.3917913h4.9561567c0.2285447,0,0.3983207-0.169776,0.3983207-0.3917913

C6.2822628,8.7351913,6.1124868,8.5523558,5.8839421,8.5523558z"></path></g></svg> <!----> 52 of 74 symbols inside <a data-v-354ee602="" href="/documentation/xcode/signing-a-daemon-with-a-restricted-entitlement"

class="leaf-link" id="-1939643890" tabindex="-1" aria-describedby="label--1939643890 <root> usage--1939643890"> Signing a Daemon with a Restricted Entitlement <!----> To navigate the symbols, press Up Arrow, Down Arrow, Left Arrow or Right Arrow <!----> <svg data-v-7f60a732="" data-v-7334d1b4="" aria-hidden="true" xmlns="http://www.w3.org/2000/svg" class="svg-icon article-icon icon-inline" viewBox="0 0 14 14"><g data-v-7f60a732="" transform="translate(3.616699, 1.608398)"><path data-v-7f60a732="" d="M0.0136063,12.3984375H6.948308c1.3516788,0,2.0242538-0.6856346,2.0242538-2.0438433V4.4254899
c0-0.842351-0.0979481-1.2080226-0.6203365-1.7434704L4.7542777-0.9812267
C4.2580094-1.490555,3.8466287-1.6015625,3.1152854-1.6015625H0.0136063c-1.3451493,0-2.0242538,0.6921641-2.0242538,2.0503731
v9.9057837C-2.0106475,11.7193327-1.3380729,12.3984375,0.0136063,12.3984375z M0.0593152,11.3471317
c-0.6725746,0-1.0186567-0.3591423-1.0186567-1.0121269V0.4684002c0-0.6464552,0.346082-1.0186567,1.0251865-1.0186567h2.9057837

v3.7938433c0,0.8227613,0.4113805,1.2276118,1.227612,1.2276118h3.7220149v5.8638062
c0,0.6529846-0.3460822,1.0121269-1.0251865,1.0121269H0.0593152z M4.3167777,3.4851911
c-0.2611938,0-0.3591416-0.1044776-0.3591416-0.3656716v-3.4673507l3.761194,3.8330224H4.3167777z M5.8839421,6.2734375H0.9277854
c-0.2350746,0-0.4113806,0.1763058-0.4113806,0.3983207c0,0.2285452,0.176306,0.404851,0.4113806,0.404851h4.9561567
c0.2285447,0,0.3983207-0.1763058,0.3983207-0.404851C6.2822628,6.4497433,6.1124868,6.2734375,5.8839421,6.2734375z
M5.8839421,8.5523558H0.9277854c-0.2350746,0-0.4113806,0.1828356-0.4113806,0.4113798

c0,0.2220154,0.176306,0.3917913,0.4113806,0.3917913h4.9561567c0.2285447,0,0.3983207-0.169776,0.3983207-0.3917913

C6.2822628,8.7351913,6.1124868,8.5523558,5.8839421,8.5523558z"></path></g></svg> <!----> 53 of 74 symbols inside <a data-v-354ee602="" href="/documentation/technotes/tn3125-inside-code-signing-provisioning-profiles" class="leaf-link" id="413770605" tabindex="-1" aria-describedby="label-413770605 <root> usage-413770605"> TN3125: Inside Code

Signing: Provisioning Profiles <!----> To navigate the symbols, press Up Arrow, Down Arrow, Left Arrow or Right Arrow <!----> <!----> <!----> 54 of 74 symbols inside <h3 data-v-354ee602="" id="-1788968281" tabindex="-1" aria-describedby="label--1788968281 <root> usage--1788968281" class="leaf-link"> Documentation </h3><!----> To navigate the symbols, press Up Arrow, Down Arrow, Left Arrow or Right Arrow <!----> <svg data-v-7f60a732="" data-v-7334d1b4="" aria-hidden="true" xmlns="http://www.w3.org/2000/svg" class="svg-icon curly-brackets-icon icon-inline" viewBox="0 0 14 14"><g data-v-7f60a732="" transform="translate(-2.000000, -1.000000)"><g data-v-7f60a732="" transform="translate(2.616699, 1.948730)"><path data-v-7f60a732="" d="M0.0714366,6.0411005c0,0.3932204,0.2237288,0.6711864,0.6915254,0.7457628

C1.60364,6.9156766,1.9358432,7.3427954,1.9358432,8.4343204v1.9050856c0,1.8440676,0.840678,2.7118635,2.6711862,2.7118635
c0.1084747,0,0.2237291-0.0203381,0.3050852-0.0474567c0.2101693-0.0881357,0.3254237-0.2576275,0.3254237-0.4813566
c0-0.2644062-0.1152544-0.3999996-0.3525424-0.4610167c-0.0677967-0.0135593-0.1355934-0.0271187-0.2169495-0.0338984
c-1.1389828-0.081356-1.552542-0.5694914-1.552542-1.8237286V7.9529648c0-1.1457624-0.60339-1.7830505-1.6610171-1.8847456
c-0.020339,0-0.020339-0.0271187,0-0.0271187c1.0576271-0.1016951,1.6610171-0.7389832,1.6610171-1.8847456V1.8987277
c0-1.261017,0.4135592-1.7355932,1.552542-1.8169491c0.1084747-0.0067797,0.2033901-0.020339,0.2711868-0.0474576
c0.19661-0.0677966,0.298305-0.2169491,0.298305-0.4542373s-0.1220341-0.4-0.3525424-0.4813559
C4.7833009-0.9351707,4.6748261-0.94873,4.5392332-0.94873c-1.7694914,0-2.6033897,0.8813559-2.6033897,2.7118645v1.9118643
c0,1.0779662-0.3322033,1.5118647-1.1728812,1.6406779C0.2951654,5.3902531,0.0714366,5.6546597,0.0714366,6.0411005z
M12.6951647,6.0411005c0-0.3864408-0.2305079-0.6508474-0.6983051-0.7254238
c-0.8338976-0.1288133-1.1728811-0.5627117-1.1728811-1.6406779V1.7631344c0-1.8305085-0.8338985-2.7118645-2.6033897-2.7118645

c-0.1355934,0-0.2372875,0.0135593-0.3389826,0.0474576C7.6375384-0.8199164,7.522284-0.6572046,7.522284-0.4199165

s0.1152544,0.379661,0.3050847,0.4542373c0.0677967,0.0271186,0.1559324,0.040678,0.2644062,0.0474576

C9.223979,0.1360157,9.6510973,0.6377106,9.6510973,1.8987275v2.2576275c0,1.1525421,0.6033897,1.8847456,1.6542368,1.8847456
c0.020339,0,0.020339,0.0271187,0,0.0271187c-1.0508471,0-1.6542368,0.7322035-1.6542368,1.8847456v2.2508478
c0,1.2542372-0.4203396,1.7423725-1.5593224,1.8237286c-0.0813551,0.0067797-0.1423721,0.020339-0.2101688,0.0338984

C7.6443181,12.1088972,7.522284,12.25805,7.522284,12.5224562c0,0.2372885,0.1288137,0.4135599,0.3322034,0.4813566

c0.081356,0.0271187,0.1898308,0.0474567,0.2983046,0.0474567c1.8305082,0,2.6711864-0.8677959,2.6711864-2.7118635V8.4343204
c0-1.0915251,0.3389835-1.5186439,1.1728811-1.6474571C12.4646568,6.7122869,12.6951647,6.4343209,12.6951647,6.0411005z"></path></g></g></svg> <!----> 55 of 74 symbols inside <a data-v-354ee602="" href="/documentation/xcode/slothcreator_building_docc_documentation_in_xcode" class="leaf-link" id="1227248506" tabindex="-1" aria-describedby="label-1227248506 <root> usage-1227248506"> SlothCreator: Building DocC Documentation in Xcode <!----> To navigate the symbols, press Up Arrow, Down Arrow, Left Arrow or Right Arrow <!----> <svg data-v-7f60a732="" data-v-7334d1b4="" aria-hidden="true" xmlns="http://www.w3.org/2000/svg" class="svg-icon article-icon icon-inline" viewBox="0 0 14 14"><g data-v-7f60a732="" transform="translate(3.616699, 1.608398)"><path data-v-7f60a732="" d="M0.0136063,12.3984375H6.948308c1.3516788,0,2.0242538-0.6856346,2.0242538-2.0438433V4.4254899
c0-0.842351-0.0979481-1.2080226-0.6203365-1.7434704L4.7542777-0.9812267
C4.2580094-1.490555,3.8466287-1.6015625,3.1152854-1.6015625H0.0136063c-1.3451493,0-2.0242538,0.6921641-2.0242538,2.0503731
v9.9057837C-2.0106475,11.7193327-1.3380729,12.3984375,0.0136063,12.3984375z M0.0593152,11.3471317
c-0.6725746,0-1.0186567-0.3591423-1.0186567-1.0121269V0.4684002c0-0.6464552,0.346082-1.0186567,1.0251865-1.0186567h2.9057837

v3.7938433c0,0.8227613,0.4113805,1.2276118,1.227612,1.2276118h3.7220149v5.8638062

c0,0.6529846-0.3460822,1.0121269-1.0251865,1.0121269H0.0593152z
M4.3167777,3.4851911
c-0.2611938,0-0.3591416-0.1044776-0.3591416-0.3656716v-
3.4673507l3.761194,3.8330224H4.3167777z
M5.8839421,6.2734375H0.9277854
c-0.2350746,0-0.4113806,0.1763058-
0.4113806,0.3983207c0,0.2285452,0.176306,0.404851,0.4113806,0.404851h4.
9561567
c0.2285447,0,0.3983207-0.1763058,0.3983207-
0.404851C6.2822628,6.4497433,6.1124868,6.2734375,5.8839421,6.2734375z
M5.8839421,8.5523558H0.9277854c-0.2350746,0-0.4113806,0.1828356-
0.4113806,0.4113798

c0,0.2220154,0.176306,0.3917913,0.4113806,0.3917913h4.9561567c0.228544
7,0,0.3983207-0.169776,0.3983207-0.3917913

C6.2822628,8.7351913,6.1124868,8.5523558,5.8839421,8.5523558z"></path>
</g></svg> <!----
> 56 of 74
symbols inside <a data-v-354ee602=""
href="/documentation/xcode/documenting-apps-frameworks-and-packages"
class="leaf-link" id="675319141" tabindex="-1" aria-describedby="label-
675319141 <root> usage-675319141"><p data-v-53c78ce5="" data-v-
354ee602="" class="highlight">Documenting apps, frameworks, and
packages</p><!----> <div class="vue-recycle-
scroller__item-view" style="transform: translateY(2144px);"><div data-v-
354ee602="" data-v-3769e00e="" id="container--1353076412"
class="navigator-card-item" style="--nesting-index: 0;"><div data-v-
354ee602="" class="head-wrapper"><span data-v-354ee602=""
hidden="hidden" id="usage--1353076412"> To navigate the symbols, press Up
Arrow, Down Arrow, Left Arrow or Right Arrow <div data-v-354ee602=""
class="depth-spacer"><!----> <div data-v-7334d1b4="" data-v-
354ee602="" class="NavigatorLeafIcon navigator-icon"><svg data-v-
7f60a732="" data-v-7334d1b4="" aria-hidden="true"
xmlns="http://www.w3.org/2000/svg" class="svg-icon article-icon icon-inline"
viewBox="0 0 14 14"><g data-v-7f60a732="" transform="translate(3.616699,
1.608398)"><path data-v-7f60a732=""
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0.6856346,2.0242538-2.0438433V4.4254899
c0-0.842351-0.0979481-1.2080226-0.6203365-1.7434704L4.7542777-
0.9812267
C4.2580094-1.490555,3.8466287-1.6015625,3.1152854-
1.6015625H0.0136063c-1.3451493,0-2.0242538,0.6921641-
2.0242538,2.0503731
v9.9057837C-2.0106475,11.7193327-
1.3380729,12.3984375,0.0136063,12.3984375z M0.0593152,11.3471317
c-0.6725746,0-1.0186567-0.3591423-1.0186567-1.0121269V0.4684002c0-
0.6464552,0.346082-1.0186567,1.0251865-1.0186567h2.9057837

v3.7938433c0,0.8227613,0.4113805,1.2276118,1.227612,1.2276118h3.722014
9v5.8638062
c0,0.6529846-0.3460822,1.0121269-1.0251865,1.0121269H0.0593152z
M4.3167777,3.4851911

c-0.2611938,0-0.3591416-0.1044776-0.3591416-0.3656716v-3.4673507l3.761194,3.8330224H4.3167777z M5.8839421,6.2734375H0.9277854
c-0.2350746,0-0.4113806,0.1763058-0.4113806,0.3983207c0,0.2285452,0.176306,0.404851,0.4113806,0.404851h4.9561567
c0.2285447,0,0.3983207-0.1763058,0.3983207-0.404851C6.2822628,6.4497433,6.1124868,6.2734375,5.8839421,6.2734375z
M5.8839421,8.5523558H0.9277854c-0.2350746,0-0.4113806,0.1828356-0.4113806,0.4113798

c0,0.2220154,0.176306,0.3917913,0.4113806,0.3917913h4.9561567c0.2285447,0,0.3983207-0.169776,0.3983207-0.3917913

C6.2822628,8.7351913,6.1124868,8.5523558,5.8839421,8.5523558z"></path></g></svg> <!----> 57 of 74 symbols inside <a data-v-354ee602="" href="/documentation/xcode/writing-symbol-documentation-in-your-source-files" class="leaf-link" id="-1353076412" tabindex="-1" aria-describedby="label--1353076412 <root> usage--1353076412"> Writing Symbol Documentation in Your Source Files <!----> To navigate the symbols, press Up Arrow, Down Arrow, Left Arrow or Right Arrow <!----> <svg data-v-7f60a732="" data-v-7334d1b4="" aria-hidden="true" xmlns="http://www.w3.org/2000/svg" class="svg-icon article-icon icon-inline" viewBox="0 0 14 14"><g data-v-7f60a732="" transform="translate(3.616699, 1.608398)"><path data-v-7f60a732="" d="M0.0136063,12.3984375H6.948308c1.3516788,0,2.0242538-0.6856346,2.0242538-2.0438433V4.4254899
c0-0.842351-0.0979481-1.2080226-0.6203365-1.7434704L4.7542777-0.9812267
C4.2580094-1.490555,3.8466287-1.6015625,3.1152854-1.6015625H0.0136063c-1.3451493,0-2.0242538,0.6921641-2.0242538,2.0503731
v9.9057837C-2.0106475,11.7193327-1.3380729,12.3984375,0.0136063,12.3984375z M0.0593152,11.3471317
c-0.6725746,0-1.0186567-0.3591423-1.0186567-1.0121269V0.4684002c0-0.6464552,0.346082-1.0186567,1.0251865-1.0186567h2.9057837

v3.7938433c0,0.8227613,0.4113805,1.2276118,1.227612,1.2276118h3.7220149v5.8638062
c0,0.6529846-0.3460822,1.0121269-1.0251865,1.0121269H0.0593152z M4.3167777,3.4851911
c-0.2611938,0-0.3591416-0.1044776-0.3591416-0.3656716v-3.4673507l3.761194,3.8330224H4.3167777z M5.8839421,6.2734375H0.9277854

c-0.2350746,0-0.4113806,0.1763058-
0.4113806,0.3983207c0,0.2285452,0.176306,0.404851,0.4113806,0.404851h4.
9561567
c0.2285447,0,0.3983207-0.1763058,0.3983207-
0.404851C6.2822628,6.4497433,6.1124868,6.2734375,5.8839421,6.2734375z
M5.8839421,8.5523558H0.9277854c-0.2350746,0-0.4113806,0.1828356-
0.4113806,0.4113798

c0,0.2220154,0.176306,0.3917913,0.4113806,0.3917913h4.9561567c0.228544
7,0,0.3983207-0.169776,0.3983207-0.3917913

C6.2822628,8.7351913,6.1124868,8.5523558,5.8839421,8.5523558z"></path>
</g></svg> <!----
> 58 of 74
symbols inside <a data-v-354ee602=""
href="/documentation/xcode/adding-structure-to-your-documentation-pages"
class="leaf-link" id="7438250" tabindex="-1" aria-describedby="label-7438250
<root> usage-7438250"><p data-v-53c78ce5="" data-v-354ee602=""
class="highlight">Adding Structure to Your Documentation
Pages</p><!----> <div class="vue-recycle-
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354ee602="" data-v-3769e00e="" id="container--82853291" class="navigator-
card-item" style="--nesting-index: 0;"><div data-v-354ee602="" class="head-
wrapper">
To navigate the symbols, press Up Arrow, Down Arrow, Left Arrow or Right Arrow
<!----> <div
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icon"><svg data-v-7f60a732="" data-v-7334d1b4="" aria-hidden="true"
xmlns="http://www.w3.org/2000/svg" class="svg-icon article-icon icon-inline"
viewBox="0 0 14 14"><g data-v-7f60a732="" transform="translate(3.616699,
1.608398)"><path data-v-7f60a732=""
d="M0.0136063,12.3984375H6.948308c1.3516788,0,2.0242538-
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c0-0.842351-0.0979481-1.2080226-0.6203365-1.7434704L4.7542777-
0.9812267
C4.2580094-1.490555,3.8466287-1.6015625,3.1152854-
1.6015625H0.0136063c-1.3451493,0-2.0242538,0.6921641-
2.0242538,2.0503731
v9.9057837C-2.0106475,11.7193327-
1.3380729,12.3984375,0.0136063,12.3984375z M0.0593152,11.3471317
c-0.6725746,0-1.0186567-0.3591423-1.0186567-1.0121269V0.4684002c0-
0.6464552,0.346082-1.0186567,1.0251865-1.0186567h2.9057837

v3.7938433c0,0.8227613,0.4113805,1.2276118,1.227612,1.2276118h3.722014
9v5.8638062
c0,0.6529846-0.3460822,1.0121269-1.0251865,1.0121269H0.0593152z
M4.3167777,3.4851911
c-0.2611938,0-0.3591416-0.1044776-0.3591416-0.3656716v-
3.4673507l3.761194,3.8330224H4.3167777z
M5.8839421,6.2734375H0.9277854
c-0.2350746,0-0.4113806,0.1763058-
0.4113806,0.3983207c0,0.2285452,0.176306,0.404851,0.4113806,0.404851h4.
9561567

c0.2285447,0,0.3983207-0.1763058,0.3983207-
0.404851C6.2822628,6.4497433,6.1124868,6.2734375,5.8839421,6.2734375z
M5.8839421,8.5523558H0.9277854c-0.2350746,0-0.4113806,0.1828356-
0.4113806,0.4113798

c0,0.2220154,0.176306,0.3917913,0.4113806,0.3917913h4.9561567c0.228544
7,0,0.3983207-0.169776,0.3983207-0.3917913

C6.2822628,8.7351913,6.1124868,8.5523558,5.8839421,8.5523558z"></path>
</g></svg> <!----
> 59 of 74
symbols inside <a data-v-354ee602=""
href="/documentation/xcode/adding-supplemental-content-to-a-documentation-
catalog" class="leaf-link" id="-82853291" tabindex="-1" aria-
describedby="label--82853291 <root> usage--82853291"><p data-v-
53c78ce5="" data-v-354ee602="" class="highlight">Adding Supplemental
Content to a Documentation
Catalog</p><!----> <div class="vue-recycle-
scroller__item-view" style="transform: translateY(2240px);"><div data-v-
354ee602="" data-v-3769e00e="" id="container--627517279" class="navigator-
card-item" style="--nesting-index: 0;"><div data-v-354ee602="" class="head-
wrapper"><span data-v-354ee602="" hidden="hidden" id="usage--
627517279"> To navigate the symbols, press Up Arrow, Down Arrow, Left Arrow
or Right Arrow <!----
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7334d1b4="" aria-hidden="true" xmlns="http://www.w3.org/2000/svg"
class="svg-icon article-icon icon-inline" viewBox="0 0 14 14"><g data-v-
7f60a732="" transform="translate(3.616699, 1.608398)"><path data-v-
7f60a732="" d="M0.0136063,12.3984375H6.948308c1.3516788,0,2.0242538-
0.6856346,2.0242538-2.0438433V4.4254899
c0-0.842351-0.0979481-1.2080226-0.6203365-1.7434704L4.7542777-
0.9812267
C4.2580094-1.490555,3.8466287-1.6015625,3.1152854-
1.6015625H0.0136063c-1.3451493,0-2.0242538,0.6921641-
2.0242538,2.0503731
v9.9057837C-2.0106475,11.7193327-
1.3380729,12.3984375,0.0136063,12.3984375z M0.0593152,11.3471317
c-0.6725746,0-1.0186567-0.3591423-1.0186567-1.0121269V0.4684002c0-
0.6464552,0.346082-1.0186567,1.0251865-1.0186567h2.9057837

v3.7938433c0,0.8227613,0.4113805,1.2276118,1.227612,1.2276118h3.722014
9v5.8638062
c0,0.6529846-0.3460822,1.0121269-1.0251865,1.0121269H0.0593152z
M4.3167777,3.4851911
c-0.2611938,0-0.3591416-0.1044776-0.3591416-0.3656716v-
3.4673507l3.761194,3.8330224H4.3167777z
M5.8839421,6.2734375H0.9277854
c-0.2350746,0-0.4113806,0.1763058-
0.4113806,0.3983207c0,0.2285452,0.176306,0.404851,0.4113806,0.404851h4.
9561567
c0.2285447,0,0.3983207-0.1763058,0.3983207-
0.404851C6.2822628,6.4497433,6.1124868,6.2734375,5.8839421,6.2734375z

M5.8839421,8.5523558H0.9277854c-0.2350746,0-0.4113806,0.1828356-0.4113806,0.4113798

c0,0.2220154,0.176306,0.3917913,0.4113806,0.3917913h4.9561567c0.2285447,0,0.3983207-0.169776,0.3983207-0.3917913

C6.2822628,8.7351913,6.1124868,8.5523558,5.8839421,8.5523558z"></path></g></svg> <!----> 60 of 74 symbols inside <a data-v-354ee602="" href="/documentation/xcode/formatting-your-documentation-content" class="leaf-link" id="-627517279" tabindex="-1" aria-describedby="label--627517279 <root> usage--627517279"> Formatting Your Documentation Content <!----> To navigate the symbols, press Up Arrow, Down Arrow, Left Arrow or Right Arrow <!----> <svg data-v-7f60a732="" data-v-7334d1b4="" aria-hidden="true" xmlns="http://www.w3.org/2000/svg" class="svg-icon article-icon icon-inline" viewBox="0 0 14 14"><g data-v-7f60a732="" transform="translate(3.616699, 1.608398)"><path data-v-7f60a732="" d="M0.0136063,12.3984375H6.948308c1.3516788,0,2.0242538-0.6856346,2.0242538-2.0438433V4.4254899
c0-0.842351-0.0979481-1.2080226-0.6203365-1.7434704L4.7542777-0.9812267
C4.2580094-1.490555,3.8466287-1.6015625,3.1152854-1.6015625H0.0136063c-1.3451493,0-2.0242538,0.6921641-2.0242538,2.0503731
v9.9057837C-2.0106475,11.7193327-1.3380729,12.3984375,0.0136063,12.3984375z M0.0593152,11.3471317
c-0.6725746,0-1.0186567-0.3591423-1.0186567-1.0121269V0.4684002c0-0.6464552,0.346082-1.0186567,1.0251865-1.0186567h2.9057837

v3.7938433c0,0.8227613,0.4113805,1.2276118,1.227612,1.2276118h3.7220149v5.8638062
c0,0.6529846-0.3460822,1.0121269-1.0251865,1.0121269H0.0593152z M4.3167777,3.4851911
c-0.2611938,0-0.3591416-0.1044776-0.3591416-0.3656716v-3.4673507l3.761194,3.8330224H4.3167777z M5.8839421,6.2734375H0.9277854
c-0.2350746,0-0.4113806,0.1763058-0.4113806,0.3983207c0,0.2285452,0.176306,0.404851,0.4113806,0.404851h4.9561567
c0.2285447,0,0.3983207-0.1763058,0.3983207-0.404851C6.2822628,6.4497433,6.1124868,6.2734375,5.8839421,6.2734375z
M5.8839421,8.5523558H0.9277854c-0.2350746,0-0.4113806,0.1828356-0.4113806,0.4113798

c0,0.2220154,0.176306,0.3917913,0.4113806,0.3917913h4.9561567c0.2285447,0,0.3983207-0.169776,0.3983207-0.3917913

C6.2822628,8.7351913,6.1124868,8.5523558,5.8839421,8.5523558z"></path></g></svg> <!----> 61 of 74 symbols inside <a data-v-354ee602="" href="/documentation/xcode/distributing-documentation-to-external-developers" class="leaf-link" id="133638384" tabindex="-1" aria-describedby="label-133638384 <root> usage-133638384"> Distributing Documentation to External Developers <!----> To navigate the symbols, press Up Arrow, Down Arrow, Left Arrow or Right Arrow <!----> <!----> <!----> 62 of 74 symbols inside <h3 data-v-354ee602="" id="-1788968252" tabindex="-1" aria-describedby="label--1788968252 <root> usage--1788968252" class="leaf-link"> Code Sharing </h3><!----> To navigate the symbols, press Up Arrow, Down Arrow, Left Arrow or Right Arrow <button data-v-354ee602="" tabindex="-1" aria-labelledby="98698880" aria-expanded="false" aria-describedby="label-98698880 <root> label-parent-98698880" class="tree-toggle"><svg data-v-7f60a732="" data-v-354ee602="" aria-hidden="true" xmlns="http://www.w3.org/2000/svg" class="svg-icon inline-chevron-right-icon icon-inline chevron" viewBox="0 0 14 14"><path data-v-7f60a732="" d="m4.81347656 13.1269531c.22558594 0 .41015625-.0820312.56738282-.2324219l5.31835942-5.19531245c.1845703-.19140625.2802734-.38964844.2802734-.63574219 0-.23925781-.0888672-.45117187-.2802734-.62890625l-5.31835942-5.20214843c-.15722657-.15039063-.34179688-.23242188-.56738282-.23242188-.45800781 0-.81347656.35546875-.81347656.80664062 0 .21875.09570312.43066407.24609375.58789063l4.79199219 4.67578125-4.79199219 4.6621094c-.15722656.1640625-.24609375.3623047-.24609375.5878906 0 .4511719.35546875.8066406.81347656.8066406z"></path></svg></button> <svg data-v-7f60a732="" data-v-7334d1b4="" aria-hidden="true" xmlns="http://www.w3.org/2000/svg" class="svg-icon collection-icon icon-inline" viewBox="0 0 14 14"><title data-v-7f60a732="">Collection</title><g data-v-7f60a732=""

transform="translate(2.116699, 4.455566)"><path data-v-7f60a732="" d="M-1.2412647-0.767793c0.4863523,0,0.8754342-0.3890819,0.8754342-0.8684863
c0-0.4863524-0.3890819-0.8754342-0.8754342-0.8754342S-2.116699-2.1226318-2.116699-1.6362793
C-2.116699-1.1568749-1.7276171-0.767793-1.2412647-0.767793z M1.829703-1.0804482h9.490819
c0.3126545,0,0.5627785-0.2431761,0.5627785-0.5558312c0-0.319603-0.250124-0.5627792-0.5627785-0.5627792H1.829703
c-0.319603,0-0.5627792,0.2431762-0.5627792,0.5627792C1.2669238-1.3236243,1.5101-1.0804482,1.829703-1.0804482z
M-1.2412647,3.4356809c0.4863523,0,0.8754342-0.3890817,0.8754342-0.8754342s-0.3890819-0.8754343-0.8754342-0.8754343
S-2.116699,2.0738943-2.116699,2.5602467S-1.7276171,3.4356809-1.2412647,3.4356809z M1.829703,3.1230259h9.490819
c0.3126545,0,0.5627785-0.2501242,0.5627785-0.5627792s-0.250124-0.5558312-0.5627785-0.5558312H1.829703
c-0.319603,0-0.5627792,0.243176-0.5627792,0.5558312S1.5101,3.1230259,1.829703,3.1230259z M-1.2412647,7.6391549
c0.4863523,0,0.8754342-0.3960299,0.8754342-0.8754344c0-0.4863524-0.3890819-0.8754339-0.8754342-0.8754339
S-2.116699,6.2773681-2.116699,6.7637205C-2.116699,7.243125-1.7276171,7.6391549-1.2412647,7.6391549z M1.829703,7.3195519
h9.490819c0.3126545,0,0.5627785-0.2431765,0.5627785-0.5558314c0-0.319603-0.250124-0.5627789-0.5627785-0.5627789H1.829703
c-0.319603,0-0.5627792,0.243176-0.5627792,0.5627789C1.2669238,7.0763755,1.5101,7.3195519,1.829703,7.3195519z"></path></g></svg> , containing 16 symbols 63 of 74 symbols inside <a data-v-354ee602="" href="/documentation/xcode/swift-packages" class="leaf-link" id="98698880" tabindex="-1" aria-describedby="label-98698880 <root> label-parent-98698880 usage-98698880"> Swift Packages <!----> To navigate the symbols, press Up Arrow, Down Arrow, Left Arrow or Right Arrow <!----> <!----> <!----> 64 of 74 symbols inside <h3 data-v-354ee602="" id="-1788968250" tabindex="-1" aria-describedby="label--1788968250 <root> usage--1788968250" class="leaf-link"> Performance </h3><!----> To navigate the

symbols, press Up Arrow, Down Arrow, Left Arrow or Right Arrow <button data-v-354ee602="" tabindex="-1" aria-labelledby="-1964426591" aria-expanded="false" aria-describedby="label--1964426591 <root> label-parent--1964426591" class="tree-toggle"><svg data-v-7f60a732="" data-v-354ee602="" aria-hidden="true" xmlns="http://www.w3.org/2000/svg" class="svg-icon inline-chevron-right-icon icon-inline chevron" viewBox="0 0 14 14"><path data-v-7f60a732="" d="m4.81347656 13.1269531c.22558594
0 .41015625-.0820312.56738282-.2324219l5.31835942-
5.19531245c.1845703-.19140625.2802734-.38964844.2802734-.63574219
0-.23925781-.0888672-.45117187-.2802734-.62890625l-5.31835942-
5.20214843c-.15722657-.15039063-.34179688-.23242188-.56738282-.2324218
8-.45800781 0-.81347656.35546875-.81347656.80664062
0 .21875.09570312.43066407.24609375.58789063l4.79199219 4.67578125-
4.79199219
4.6621094c-.15722656.1640625-.24609375.3623047-.24609375.5878906
0
.4511719.35546875.8066406.81347656.8066406z"></path></svg></button>
<svg data-v-7f60a732="" data-v-7334d1b4="" aria-hidden="true" xmlns="http://www.w3.org/2000/svg" class="svg-icon collection-icon icon-inline" viewBox="0 0 14 14"><title
data-v-7f60a732="">Collection</title><g data-v-7f60a732="" transform="translate(2.116699, 4.455566)"><path data-v-7f60a732="" d="M-
1.2412647-0.767793c0.4863523,0,0.8754342-0.3890819,0.8754342-0.8684863
c0-0.4863524-0.3890819-0.8754342-0.8754342-0.8754342S-2.116699-
2.1226318-2.116699-1.6362793
C-2.116699-1.1568749-1.7276171-0.767793-1.2412647-0.767793z
M1.829703-1.0804482h9.490819
c0.3126545,0,0.5627785-0.2431761,0.5627785-0.5558312c0-0.319603-
0.250124-0.5627792-0.5627785-0.5627792H1.829703
c-0.319603,0-0.5627792,0.2431762-0.5627792,0.5627792C1.2669238-
1.3236243,1.5101-1.0804482,1.829703-1.0804482z
M-1.2412647,3.4356809c0.4863523,0,0.8754342-0.3890817,0.8754342-
0.8754342s-0.3890819-0.8754343-0.8754342-0.8754343
S-2.116699,2.0738943-2.116699,2.5602467S-1.7276171,3.4356809-
1.2412647,3.4356809z M1.829703,3.1230259h9.490819
c0.3126545,0,0.5627785-0.2501242,0.5627785-0.5627792s-0.250124-
0.5558312-0.5627785-0.5558312H1.829703
c-0.319603,0-0.5627792,0.243176-
0.5627792,0.5558312S1.5101,3.1230259,1.829703,3.1230259z M-
1.2412647,7.6391549
c0.4863523,0,0.8754342-0.3960299,0.8754342-0.8754344c0-0.4863524-
0.3890819-0.8754339-0.8754342-0.8754339
S-2.116699,6.2773681-2.116699,6.7637205C-2.116699,7.243125-
1.7276171,7.6391549-1.2412647,7.6391549z M1.829703,7.3195519
h9.490819c0.3126545,0,0.5627785-0.2431765,0.5627785-0.5558314c0-
0.319603-0.250124-0.5627789-0.5627785-0.5627789H1.829703
c-0.319603,0-0.5627792,0.243176-
0.5627792,0.5627789C1.2669238,7.0763755,1.5101,7.3195519,1.829703,7.319
5519z"></path></g></svg> <span data-v-354ee602="" hidden="hidden" id="label-parent--
1964426591">, containing 9 symbols 65 of 74 symbols inside <a

data-v-354ee602="" href="/documentation/xcode/improving-your-app-s-performance" class="leaf-link" id="-1964426591" tabindex="-1" aria-describedby="label--1964426591 <root> label-parent--1964426591 usage--1964426591"> Improving your app’s performance <!----> To navigate the symbols, press Up Arrow, Down Arrow, Left Arrow or Right Arrow <button data-v-354ee602="" tabindex="-1" aria-labelledby="1446255975" aria-expanded="false" aria-describedby="label-1446255975 <root> label-parent-1446255975" class="tree-toggle"><svg data-v-7f60a732="" data-v-354ee602="" aria-hidden="true" xmlns="http://www.w3.org/2000/svg" class="svg-icon inline-chevron-right-icon icon-inline chevron" viewBox="0 0 14 14"><path data-v-7f60a732="" d="m4.81347656 13.1269531c.22558594 0 .41015625-.0820312.56738282-.2324219l5.31835942-5.19531245c.1845703-.19140625.2802734-.38964844.2802734-.63574219 0-.23925781-.0888672-.45117187-.2802734-.62890625l-5.31835942-5.20214843c-.15722657-.15039063-.34179688-.23242188-.56738282-.23242188-.45800781 0-.81347656.35546875-.81347656.80664062 0 .21875.09570312.43066407.24609375.58789063l4.79199219 4.67578125-4.79199219 4.6621094c-.15722656.1640625-.24609375.3623047-.24609375.5878906 0 .4511719.35546875.8066406.81347656.8066406z"></path></svg></button> <svg data-v-7f60a732="" data-v-7334d1b4="" aria-hidden="true" xmlns="http://www.w3.org/2000/svg" class="svg-icon collection-icon icon-inline" viewBox="0 0 14 14"><title data-v-7f60a732="">Collection</title><g data-v-7f60a732="" transform="translate(2.116699, 4.455566)"><path data-v-7f60a732="" d="M-1.2412647-0.767793c0.4863523,0,0.8754342-0.3890819,0.8754342-0.8684863 c0-0.4863524-0.3890819-0.8754342-0.8754342-0.8754342S-2.116699-2.1226318-2.116699-1.6362793 C-2.116699-1.1568749-1.7276171-0.767793-1.2412647-0.767793z M1.829703-1.0804482h9.490819 c0.3126545,0,0.5627785-0.2431761,0.5627785-0.5558312c0-0.319603-0.250124-0.5627792-0.5627785-0.5627792H1.829703 c-0.319603,0-0.5627792,0.2431762-0.5627792,0.5627792C1.2669238-1.3236243,1.5101-1.0804482,1.829703-1.0804482z M-1.2412647,3.4356809c0.4863523,0,0.8754342-0.3890817,0.8754342-0.8754342s-0.3890819-0.8754343-0.8754342-0.8754343 S-2.116699,2.0738943-2.116699,2.5602467S-1.7276171,3.4356809-1.2412647,3.4356809z M1.829703,3.1230259h9.490819 c0.3126545,0,0.5627785-0.2501242,0.5627785-0.5627792s-0.250124-0.5558312-0.5627785-0.5558312H1.829703 c-0.319603,0-0.5627792,0.243176-0.5627792,0.5558312S1.5101,3.1230259,1.829703,3.1230259z M-1.2412647,7.6391549

c0.4863523,0,0.8754342-0.3960299,0.8754342-0.8754344c0-0.4863524-0.3890819-0.8754339-0.8754342-0.8754339
S-2.116699,6.2773681-2.116699,6.7637205C-2.116699,7.243125-1.7276171,7.6391549-1.2412647,7.6391549z M1.829703,7.3195519
h9.490819c0.3126545,0,0.5627785-0.2431765,0.5627785-0.5558314c0-0.319603-0.250124-0.5627789-0.5627785-0.5627789H1.829703
c-0.319603,0-0.5627792,0.243176-0.5627792,0.5627789C1.2669238,7.0763755,1.5101,7.3195519,1.829703,7.3195519z"></path></g></svg> , containing 4 symbols 66 of 74 symbols inside <a data-v-354ee602="" href="/documentation/xcode/analyzing-the-performance-of-your-shipping-app" class="leaf-link" id="1446255975" tabindex="-1" aria-describedby="label-1446255975 <root> label-parent-1446255975 usage-1446255975"> Analyzing the Performance of Your Shipping App <!----> To navigate the symbols, press Up Arrow, Down Arrow, Left Arrow or Right Arrow <button data-v-354ee602="" tabindex="-1" aria-labelledby="682353844" aria-expanded="false" aria-describedby="label-682353844 <root> label-parent-682353844" class="tree-toggle"><svg data-v-7f60a732="" data-v-354ee602="" aria-hidden="true" xmlns="http://www.w3.org/2000/svg" class="svg-icon inline-chevron-right-icon icon-inline chevron" viewBox="0 0 14 14"><path data-v-7f60a732="" d="m4.81347656 13.1269531c.22558594 0 .41015625-.0820312.56738282-.2324219l5.31835942-5.19531245c.1845703-.19140625.2802734-.38964844.2802734-.63574219 0-.23925781-.0888672-.45117187-.2802734-.62890625l-5.31835942-5.20214843c-.15722657-.15039063-.34179688-.23242188-.56738282-.23242188-.45800781 0-.81347656.35546875-.81347656.80664062 0 .21875.09570312.43066407.24609375.58789063l4.79199219 4.67578125-4.79199219 4.6621094c-.15722656.1640625-.24609375.3623047-.24609375.5878906 0 .4511719.35546875.8066406.81347656.8066406z"></path></svg></button> <svg data-v-7f60a732="" data-v-7334d1b4="" aria-hidden="true" xmlns="http://www.w3.org/2000/svg" class="svg-icon collection-icon icon-inline" viewBox="0 0 14 14"><title data-v-7f60a732="">Collection</title><g data-v-7f60a732="" transform="translate(2.116699, 4.455566)"><path data-v-7f60a732="" d="M-1.2412647-0.767793c0.4863523,0,0.8754342-0.3890819,0.8754342-0.8684863
c0-0.4863524-0.3890819-0.8754342-0.8754342-0.8754342S-2.116699-2.1226318-2.116699-1.6362793
C-2.116699-1.1568749-1.7276171-0.767793-1.2412647-0.767793z M1.829703-1.0804482h9.490819
c0.3126545,0,0.5627785-0.2431761,0.5627785-0.5558312c0-0.319603-0.250124-0.5627792-0.5627785-0.5627792H1.829703

c-0.319603,0-0.5627792,0.2431762-0.5627792,0.5627792C1.2669238-1.3236243,1.5101-1.0804482,1.829703-1.0804482z
M-1.2412647,3.4356809c0.4863523,0,0.8754342-0.3890817,0.8754342-0.8754342s-0.3890819-0.8754343-0.8754342-0.8754343
S-2.116699,2.0738943-2.116699,2.5602467S-1.7276171,3.4356809-1.2412647,3.4356809z M1.829703,3.1230259h9.490819
c0.3126545,0,0.5627785-0.2501242,0.5627785-0.5627792s-0.250124-0.5558312-0.5627785-0.5558312H1.829703
c-0.319603,0-0.5627792,0.243176-0.5627792,0.5558312S1.5101,3.1230259,1.829703,3.1230259z M-1.2412647,7.6391549
c0.4863523,0,0.8754342-0.3960299,0.8754342-0.8754344c0-0.4863524-0.3890819-0.8754339-0.8754342-0.8754339
S-2.116699,6.2773681-2.116699,6.7637205C-2.116699,7.243125-1.7276171,7.6391549-1.2412647,7.6391549z M1.829703,7.3195519
h9.490819c0.3126545,0,0.5627785-0.2431765,0.5627785-0.5558314c0-0.319603-0.250124-0.5627789-0.5627785-0.5627789H1.829703
c-0.319603,0-0.5627792,0.243176-0.5627792,0.5627789C1.2669238,7.0763755,1.5101,7.3195519,1.829703,7.3195519z"></path></g></svg> , containing 3 symbols 67 of 74 symbols inside <a data-v-354ee602="" href="/documentation/xcode/reducing-your-app-s-size" class="leaf-link" id="682353844" tabindex="-1" aria-describedby="label-682353844 <root> label-parent-682353844 usage-682353844"> Reducing Your App’s Size <!----> To navigate the symbols, press Up Arrow, Down Arrow, Left Arrow or Right Arrow <!----> <svg data-v-7f60a732="" data-v-7334d1b4="" aria-hidden="true" xmlns="http://www.w3.org/2000/svg" class="svg-icon article-icon icon-inline" viewBox="0 0 14 14"><g data-v-7f60a732="" transform="translate(3.616699, 1.608398)"><path data-v-7f60a732="" d="M0.0136063,12.3984375H6.948308c1.3516788,0,2.0242538-0.6856346,2.0242538-2.0438433V4.4254899
c0-0.842351-0.0979481-1.2080226-0.6203365-1.7434704L4.7542777-0.9812267
C4.2580094-1.490555,3.8466287-1.6015625,3.1152854-1.6015625H0.0136063c-1.3451493,0-2.0242538,0.6921641-2.0242538,2.0503731
v9.9057837C-2.0106475,11.7193327-1.3380729,12.3984375,0.0136063,12.3984375z M0.0593152,11.3471317
c-0.6725746,0-1.0186567-0.3591423-1.0186567-1.0121269V0.4684002c0-0.6464552,0.346082-1.0186567,1.0251865-1.0186567h2.9057837

v3.7938433c0,0.8227613,0.4113805,1.2276118,1.227612,1.2276118h3.7220149v5.8638062

c0,0.6529846-0.3460822,1.0121269-1.0251865,1.0121269H0.0593152z
M4.3167777,3.4851911
c-0.2611938,0-0.3591416-0.1044776-0.3591416-0.3656716v-
3.4673507l3.761194,3.8330224H4.3167777z
M5.8839421,6.2734375H0.9277854
c-0.2350746,0-0.4113806,0.1763058-
0.4113806,0.3983207c0,0.2285452,0.176306,0.404851,0.4113806,0.404851h4.
9561567
c0.2285447,0,0.3983207-0.1763058,0.3983207-
0.404851C6.2822628,6.4497433,6.1124868,6.2734375,5.8839421,6.2734375z
M5.8839421,8.5523558H0.9277854c-0.2350746,0-0.4113806,0.1828356-
0.4113806,0.4113798

c0,0.2220154,0.176306,0.3917913,0.4113806,0.3917913h4.9561567c0.228544
7,0,0.3983207-0.169776,0.3983207-0.3917913

C6.2822628,8.7351913,6.1124868,8.5523558,5.8839421,8.5523558z"></path>
</g></svg> <!----
> 68 of 74
symbols inside <a data-v-354ee602=""
href="/documentation/xcode/improving-the-speed-of-incremental-builds"
class="leaf-link" id="-797728738" tabindex="-1" aria-describedby="label--
797728738 <root> usage--797728738"><p data-v-53c78ce5="" data-v-
354ee602="" class="highlight">Improving the Speed of Incremental
Builds</p><!----> <div class="vue-recycle-
scroller__item-view" style="transform: translateY(2528px);"><div data-v-
354ee602="" data-v-3769e00e="" id="container--284127384" class="navigator-
card-item" style="--nesting-index: 0;"><div data-v-354ee602="" class="head-
wrapper"><span data-v-354ee602="" hidden="hidden" id="usage--
284127384"> To navigate the symbols, press Up Arrow, Down Arrow, Left Arrow
or Right Arrow <!----
> <div data-v-7334d1b4="" data-v-354ee602=""
class="NavigatorLeafIcon navigator-icon"><svg data-v-7f60a732="" data-v-
7334d1b4="" aria-hidden="true" xmlns="http://www.w3.org/2000/svg"
class="svg-icon article-icon icon-inline" viewBox="0 0 14 14"><g data-v-
7f60a732="" transform="translate(3.616699, 1.608398)"><path data-v-
7f60a732="" d="M0.0136063,12.3984375H6.948308c1.3516788,0,2.0242538-
0.6856346,2.0242538-2.0438433V4.4254899
c0-0.842351-0.0979481-1.2080226-0.6203365-1.7434704L4.7542777-
0.9812267
C4.2580094-1.490555,3.8466287-1.6015625,3.1152854-
1.6015625H0.0136063c-1.3451493,0-2.0242538,0.6921641-
2.0242538,2.0503731
v9.9057837C-2.0106475,11.7193327-
1.3380729,12.3984375,0.0136063,12.3984375z M0.0593152,11.3471317
c-0.6725746,0-1.0186567-0.3591423-1.0186567-1.0121269V0.4684002c0-
0.6464552,0.346082-1.0186567,1.0251865-1.0186567h2.9057837

v3.7938433c0,0.8227613,0.4113805,1.2276118,1.227612,1.2276118h3.722014
9v5.8638062
c0,0.6529846-0.3460822,1.0121269-1.0251865,1.0121269H0.0593152z
M4.3167777,3.4851911

c-0.2611938,0-0.3591416-0.1044776-0.3591416-0.3656716v-3.4673507l3.761194,3.8330224H4.3167777z M5.8839421,6.2734375H0.9277854
c-0.2350746,0-0.4113806,0.1763058-0.4113806,0.3983207c0,0.2285452,0.176306,0.404851,0.4113806,0.404851h4.9561567
c0.2285447,0,0.3983207-0.1763058,0.3983207-0.404851C6.2822628,6.4497433,6.1124868,6.2734375,5.8839421,6.2734375z
M5.8839421,8.5523558H0.9277854c-0.2350746,0-0.4113806,0.1828356-0.4113806,0.4113798

c0,0.2220154,0.176306,0.3917913,0.4113806,0.3917913h4.9561567c0.2285447,0,0.3983207-0.169776,0.3983207-0.3917913

C6.2822628,8.7351913,6.1124868,8.5523558,5.8839421,8.5523558z"></path></g></svg> <!----> 69 of 74 symbols inside <a data-v-354ee602="" href="/documentation/xcode/improving-build-efficiency-with-good-coding-practices" class="leaf-link" id="-284127384" tabindex="-1" aria-describedby="label--284127384 <root> usage--284127384"> Improving Build Efficiency with Good Coding Practices <!----> To navigate the symbols, press Up Arrow, Down Arrow, Left Arrow or Right Arrow <!----> <svg data-v-7f60a732="" data-v-7334d1b4="" aria-hidden="true" xmlns="http://www.w3.org/2000/svg" class="svg-icon article-icon icon-inline" viewBox="0 0 14 14"><g data-v-7f60a732="" transform="translate(3.616699, 1.608398)"><path data-v-7f60a732="" d="M0.0136063,12.3984375H6.948308c1.3516788,0,2.0242538-0.6856346,2.0242538-2.0438433V4.4254899
c0-0.842351-0.0979481-1.2080226-0.6203365-1.7434704L4.7542777-0.9812267
C4.2580094-1.490555,3.8466287-1.6015625,3.1152854-1.6015625H0.0136063c-1.3451493,0-2.0242538,0.6921641-2.0242538,2.0503731
v9.9057837C-2.0106475,11.7193327-1.3380729,12.3984375,0.0136063,12.3984375z M0.0593152,11.3471317
c-0.6725746,0-1.0186567-0.3591423-1.0186567-1.0121269V0.4684002c0-0.6464552,0.346082-1.0186567,1.0251865-1.0186567h2.9057837

v3.7938433c0,0.8227613,0.4113805,1.2276118,1.227612,1.2276118h3.7220149v5.8638062
c0,0.6529846-0.3460822,1.0121269-1.0251865,1.0121269H0.0593152z M4.3167777,3.4851911
c-0.2611938,0-0.3591416-0.1044776-0.3591416-0.3656716v-3.4673507l3.761194,3.8330224H4.3167777z M5.8839421,6.2734375H0.9277854

c-0.2350746,0-0.4113806,0.1763058-
0.4113806,0.3983207c0,0.2285452,0.176306,0.404851,0.4113806,0.404851h4.
9561567
c0.2285447,0,0.3983207-0.1763058,0.3983207-
0.404851C6.2822628,6.4497433,6.1124868,6.2734375,5.8839421,6.2734375z
M5.8839421,8.5523558H0.9277854c-0.2350746,0-0.4113806,0.1828356-
0.4113806,0.4113798

c0,0.2220154,0.176306,0.3917913,0.4113806,0.3917913h4.9561567c0.228544
7,0,0.3983207-0.169776,0.3983207-0.3917913

C6.2822628,8.7351913,6.1124868,8.5523558,5.8839421,8.5523558z"></path>
</g></svg> <!----
> 70 of
74 symbols inside <a data-v-354ee602=""
href="/documentation/xcode/reduce-terminations-in-your-app" class="leaf-link"
id="-2052099492" tabindex="-1" aria-describedby="label--2052099492 <root>
usage--2052099492"><p data-v-53c78ce5="" data-v-354ee602=""
class="highlight">Reducing Terminations in Your
App</p><!----> <div class="vue-recycle-
scroller__item-view" style="transform: translateY(2592px);"><div data-v-
354ee602="" data-v-3769e00e="" id="container--1788968222"
class="navigator-card-item" style="--nesting-index: 0;"><div data-v-
354ee602="" class="head-wrapper is-group"><span data-v-354ee602=""
hidden="hidden" id="usage--1788968222"> To navigate the symbols, press Up
Arrow, Down Arrow, Left Arrow or Right Arrow <div data-v-354ee602=""
class="depth-spacer"><!----> <!----><div data-v-354ee602=""
class="title-container"><!----><span data-v-354ee602="" id="label--
1788968222" hidden="hidden"> 71 of 74 symbols inside <h3 data-v-
354ee602="" id="-1788968222" tabindex="-1" aria-describedby="label--
1788968222 <root> usage--1788968222" class="leaf-link"><p data-v-
53c78ce5="" data-v-354ee602=""
class="highlight">Instruments</p></h3><!----> <di
v class="vue-recycle-scroller__item-view" style="transform:
translateY(2624px);"><div data-v-354ee602="" data-v-3769e00e=""
id="container--1181436085" class="navigator-card-item" style="--nesting-index:
0;"> <span data-v-
354ee602="" hidden="hidden" id="usage--1181436085"> To navigate the
symbols, press Up Arrow, Down Arrow, Left Arrow or Right Arrow <div
data-v-354ee602="" class="depth-spacer"><!----> <div data-v-
7334d1b4="" data-v-354ee602="" class="NavigatorLeafIcon navigator-
icon"><svg data-v-7f60a732="" data-v-7334d1b4="" aria-hidden="true"
xmlns="http://www.w3.org/2000/svg" class="svg-icon curly-brackets-icon icon-
inline" viewBox="0 0 14 14"><g data-v-7f60a732="" transform="translate(-
2.000000, -1.000000)"><g data-v-7f60a732="" transform="translate(2.616699,
1.948730)"><path data-v-7f60a732=""
d="M0.0714366,6.0411005c0,0.3932204,0.2237288,0.6711864,0.6915254,0.74
57628

C1.60364,6.9156766,1.9358432,7.3427954,1.9358432,8.4343204v1.9050856c0,
1.8440676,0.840678,2.7118635,2.6711862,2.7118635
c0.1084747,0,0.2237291-0.0203381,0.3050852-0.0474567c0.2101693-
0.0881357,0.3254237-0.2576275,0.3254237-0.4813566

c0-0.2644062-0.1152544-0.3999996-0.3525424-0.4610167c-0.0677967-0.0135593-0.1355934-0.0271187-0.2169495-0.0338984
c-1.1389828-0.081356-1.552542-0.5694914-1.552542-1.8237286V7.9529648c0-1.1457624-0.60339-1.7830505-1.6610171-1.8847456
c-0.020339,0-0.020339-0.0271187,0-0.0271187c1.0576271-0.1016951,1.6610171-0.7389832,1.6610171-1.8847456V1.8987277
c0-1.261017,0.4135592-1.7355932,1.552542-1.8169491c0.1084747-0.0067797,0.2033901-0.020339,0.2711868-0.0474576
c0.19661-0.0677966,0.298305-0.2169491,0.298305-0.4542373s-0.1220341-0.4-0.3525424-0.4813559
C4.7833009-0.9351707,4.6748261-0.94873,4.5392332-0.94873c-1.7694914,0-2.6033897,0.8813559-2.6033897,2.7118645v1.9118643
c0,1.0779662-0.3322033,1.5118647-1.1728812,1.6406779C0.2951654,5.3902531,0.0714366,5.6546597,0.0714366,6.0411005z
M12.6951647,6.0411005c0-0.3864408-0.2305079-0.6508474-0.6983051-0.7254238
c-0.8338976-0.1288133-1.1728811-0.5627117-1.1728811-1.6406779V1.7631344c0-1.8305085-0.8338985-2.7118645-2.6033897-2.7118645
c-0.1355934,0-0.2372875,0.0135593-0.3389826,0.0474576C7.6375384-0.8199164,7.522284-0.6572046,7.522284-0.4199165

s0.1152544,0.379661,0.3050847,0.4542373c0.0677967,0.0271186,0.1559324,0.040678,0.2644062,0.0474576

C9.223979,0.1360157,9.6510973,0.6377106,9.6510973,1.8987275v2.2576275c0,1.1525421,0.6033897,1.8847456,1.6542368,1.8847456
c0.020339,0,0.020339,0.0271187,0,0.0271187c-1.0508471,0-1.6542368,0.7322035-1.6542368,1.8847456v2.2508478
c0,1.2542372-0.4203396,1.7423725-1.5593224,1.8237286c-0.0813551,0.0067797-0.1423721,0.020339-0.2101688,0.0338984

C7.6443181,12.1088972,7.522284,12.25805,7.522284,12.5224562c0,0.2372885,0.1288137,0.4135599,0.3322034,0.4813566

c0.081356,0.0271187,0.1898308,0.0474567,0.2983046,0.0474567c1.8305082,0,2.6711864-0.8677959,2.6711864-2.7118635V8.4343204
c0-1.0915251,0.3389835-1.5186439,1.1728811-1.6474571C12.4646568,6.7122869,12.6951647,6.4343209,12.6951647,6.0411005z"></path></g></g></svg> <!----> 72 of 74 symbols inside <a data-v-354ee602="" href="/documentation/metrickit/improving_your_app_s_performance/creating_custom_modelers_for_intelligent_instruments" class="leaf-link" id="-1181436085" tabindex="-1" aria-describedby="label--1181436085 <root> usage--1181436085"> Creating Custom Modelers for Intelligent Instruments <!----> To navigate the symbols, press Up

Arrow, Down Arrow, Left Arrow or Right Arrow <!----> <!----> <!----> 73 of 74 symbols inside <h3 data-v-354ee602="" id="-1788968220" tabindex="-1" aria-describedby="label--1788968220 <root> usage--1788968220" class="leaf-link"> Associated Domains and Universal Links </h3><!----> To navigate the symbols, press Up Arrow, Down Arrow, Left Arrow or Right Arrow <button data-v-354ee602="" tabindex="-1" aria-labelledby="1696967599" aria-expanded="false" aria-describedby="label-1696967599 <root> label-parent-1696967599" class="tree-toggle"><svg data-v-7f60a732="" data-v-354ee602="" aria-hidden="true" xmlns="http://www.w3.org/2000/svg" class="svg-icon inline-chevron-right-icon icon-inline chevron" viewBox="0 0 14 14"><path data-v-7f60a732="" d="m4.81347656 13.1269531c.22558594
0 .41015625-.0820312.56738282-.2324219l5.31835942-5.19531245c.1845703-.19140625.2802734-.38964844.2802734-.63574219
0-.23925781-.0888672-.45117187-.2802734-.62890625l-5.31835942-5.20214843c-.15722657-.15039063-.34179688-.23242188-.56738282-.23242188-.45800781 0-.81347656.35546875-.81347656.80664062
0 .21875.09570312.43066407.24609375.58789063l4.79199219 4.67578125-4.79199219
4.6621094c-.15722656.1640625-.24609375.3623047-.24609375.5878906
0
.4511719.35546875.8066406.81347656.8066406z"></path></svg></button> <svg data-v-7f60a732="" data-v-7334d1b4="" aria-hidden="true" xmlns="http://www.w3.org/2000/svg" class="svg-icon collection-icon icon-inline" viewBox="0 0 14 14"><title data-v-7f60a732="">Collection</title><g data-v-7f60a732="" transform="translate(2.116699, 4.455566)"><path data-v-7f60a732="" d="M-1.2412647-0.767793c0.4863523,0,0.8754342-0.3890819,0.8754342-0.8684863
c0-0.4863524-0.3890819-0.8754342-0.8754342-0.8754342S-2.116699-2.1226318-2.116699-1.6362793
C-2.116699-1.1568749-1.7276171-0.767793-1.2412647-0.767793z M1.829703-1.0804482h9.490819
c0.3126545,0,0.5627785-0.2431761,0.5627785-0.5558312c0-0.319603-0.250124-0.5627792-0.5627785-0.5627792H1.829703
c-0.319603,0-0.5627792,0.2431762-0.5627792,0.5627792C1.2669238-1.3236243,1.5101-1.0804482,1.829703-1.0804482z
M-1.2412647,3.4356809c0.4863523,0,0.8754342-0.3890817,0.8754342-0.8754342s-0.3890819-0.8754343-0.8754342-0.8754343
S-2.116699,2.0738943-2.116699,2.5602467S-1.7276171,3.4356809-1.2412647,3.4356809z M1.829703,3.1230259h9.490819
c0.3126545,0,0.5627785-0.2501242,0.5627785-0.5627792s-0.250124-0.5558312-0.5627785-0.5558312H1.829703

c-0.319603,0-0.5627792,0.243176-0.5627792,0.5558312S1.5101,3.1230259,1.829703,3.1230259z M-1.2412647,7.6391549
c0.4863523,0,0.8754342-0.3960299,0.8754342-0.8754344c0-0.4863524-0.3890819-0.8754339-0.8754342-0.8754339
S-2.116699,6.2773681-2.116699,6.7637205C-2.116699,7.243125-1.7276171,7.6391549-1.2412647,7.6391549z M1.829703,7.3195519
h9.490819c0.3126545,0,0.5627785-0.2431765,0.5627785-0.5558314c0-0.319603-0.250124-0.5627789-0.5627785-0.5627789H1.829703
c-0.319603,0-0.5627792,0.243176-0.5627792,0.5627789C1.2669238,7.0763755,1.5101,7.3195519,1.829703,7.3195519z"></path></g></svg> , containing 8 symbols 74 of 74 symbols inside <a data-v-354ee602="" href="/documentation/xcode/allowing-apps-and-websites-to-link-to-your-content" class="leaf-link" id="1696967599" tabindex="-1" aria-describedby="label-1696967599 <root> label-parent-1696967599 usage-1696967599"> Allowing Apps and Websites to Link to Your Content <!----> <!----> <object aria-hidden="true" tabindex="-1" type="text/html" data="about:blank"></object> 85 items were found. Tab back to navigate through them.
<button data-v-2a33cdf4="" aria-hidden="true" tabindex="-1" class="filter__filter-button"><svg data-v-7f60a732="" data-v-2a33cdf4="" aria-hidden="true" xmlns="http://www.w3.org/2000/svg" class="svg-icon filter-icon" height="21" width="21" viewBox="0 0 41 41" fill="currentColor"><path data-v-7f60a732="" d="M20.8.3a20,20,0,0,1,0,40,20.1,20.1,0,0,1-20-20A20.2,20.2,0,0,1,20.8.3Zm0,2.6a17.4,17.4,0,0,0,0,34.8A17.2,17.2,0,0,0,38.2,20.3,17.3,17.3,0,0,0,20.8,2.9Z"></path><path data-v-7f60a732="" d="M31.9,16a1.1,1.1,0,0,0,1.2-1.1,1.1,1.1,0,0,0-1.2-1.1H9.8a1.1,1.1,0,0,0-1.2,1.1A1.1,1.1,0,0,0,9.8,16Z"></path><path data-v-7f60a732="" d="M29,22.6a1,1,0,0,0,1.1-1.1A1.1,1.1,0,0,0,29,20.4H12.7a1.1,1.1,0,0,0-1.2,1.1,1.1,1.1,0,0,0,1.2,1.1Z"></path><path data-v-7f60a732="" d="M25.9,29.2a1.1,1.1,0,0,0,1.2-1.1A1.1,1.1,0,0,0,25.9,27H15.8a1.1,1.1,0,0,0-1.2,1.1,1.1,1.1,0,0,0,1.2,1.1Z"></path></svg></button> <!----><label data-v-2a33cdf4="" id="filter-label" for="filter-input" data-value="" aria-label="Filter" class="filter__input-label"><input data-v-2a33cdf4="" id="filter-input" placeholder="Filter" aria-expanded="false" type="text" autocorrect="off" autocapitalize="off" spellcheck="false" role="combobox" aria-haspopup="true" aria-autocomplete="none" aria-owns="suggestedTags" aria-controls="suggestedTags" class="filter__input"></label> <!----> <!----

> Navigator is ready
</nav> <main data-v-09dcf724="" id="main" role="main" tabindex="0" class="main"> <svg data-v-7f60a732="" data-v-7334d1b4="" aria-hidden="true" xmlns="http://www.w3.org/2000/svg" class="svg-icon collection-icon icon-inline" viewBox="0 0 14 14" style="color: var(--color-type-icon-pink);"><title data-v-7f60a732="">Collection</title><g data-v-7f60a732="" transform="translate(2.116699, 4.455566)"><path data-v-7f60a732="" d="M-1.2412647-0.767793c0.4863523,0,0.8754342-0.3890819,0.8754342-0.8684863
c0-0.4863524-0.3890819-0.8754342-0.8754342-0.8754342S-2.116699-2.1226318-2.116699-1.6362793
C-2.116699-1.1568749-1.7276171-0.767793-1.2412647-0.767793z M1.829703-1.0804482h9.490819
c0.3126545,0,0.5627785-0.2431761,0.5627785-0.5558312c0-0.319603-0.250124-0.5627792-0.5627785-0.5627792H1.829703
c-0.319603,0-0.5627792,0.2431762-0.5627792,0.5627792C1.2669238-1.3236243,1.5101-1.0804482,1.829703-1.0804482z
M-1.2412647,3.4356809c0.4863523,0,0.8754342-0.3890817,0.8754342-0.8754342s-0.3890819-0.8754343-0.8754342-0.8754343
S-2.116699,2.0738943-2.116699,2.5602467S-1.7276171,3.4356809-1.2412647,3.4356809z M1.829703,3.1230259h9.490819
c0.3126545,0,0.5627785-0.2501242,0.5627785-0.5627792s-0.250124-0.5558312-0.5627785-0.5558312H1.829703
c-0.319603,0-0.5627792,0.243176-0.5627792,0.5558312S1.5101,3.1230259,1.829703,3.1230259z M-1.2412647,7.6391549
c0.4863523,0,0.8754342-0.3960299,0.8754342-0.8754344c0-0.4863524-0.3890819-0.8754339-0.8754342-0.8754339
S-2.116699,6.2773681-2.116699,6.7637205C-2.116699,7.243125-1.7276171,7.6391549-1.2412647,7.6391549z M1.829703,7.3195519
h9.490819c0.3126545,0,0.5627785-0.2431765,0.5627785-0.5558314c0-0.319603-0.250124-0.5627789-0.5627785-0.5627789H1.829703
c-0.319603,0-0.5627792,0.243176-0.5627792,0.5627789C1.2669238,7.0763755,1.5101,7.3195519,1.829703,7.3195519z"></path></g></svg> <!----> <!----><h1 data-v-91bcffaa="" class="title">Diagnosing Issues Using Crash Reports and Device Logs<!----></h1> Use crash reports and device logs to debug app issues. <!----><!----> <!----><!----><!----> <div data-v-702ae484="" data-v-

188b2b97="" class="content"><h2 id="Overview">Overview</h2> Customers expect apps to be stable, free of bugs, and use system resources efficently. The operating system helps you meet these expectations by collecting different log types you can use to diagnose issues in your app: Crash reports describe how your app terminated, and document the code running on each thread at the time of the crash. Jetsam event reports describe the system-memory conditions under which the operating system terminated an app. Device console logs contain detailed information on operations that occur in both the operating system and apps. Distribution builds of your app, such as for the App Store, an enterprise enviroment, or a testing team, require you to use crash reports and device logs to diagnose issues encounterd by your customers. Distribution builds don’t contain the necessary entitlements for debugging in Xcode. <h3 id="Address-Stability-Issues-Using-Crash-Reports">Address Stability Issues Using Crash Reports</h3> Crash reports are the most common type of log you’ll use when diagnosing an issue. When receiving crash reports for your app, use them to understand the stability problems the app is having. A crash report describes how your app terminated, and also contains the complete backtrace of each thread, which shows the code running at the time of the crash. To debug a problem using a crash report: Build Your App With Symbol Information and retain the Xcode archive before distributing the app. Retrieve a crash report for an issue. See Acquiring Crash Reports and Diagnostic Logs for the different ways you can retrieve crash reports. Convert the hexadecimal addresses into symbol names for your app, as described in Adding Identifiable Symbol Names to a Crash Report. Determine if the crash fits any of the patterns in Identifying the Cause of Common Crashes. Consult Analyzing a Crash Report and Examining the Fields in a Crash Report for additional insight on the issue. Update your code to fix the issue. Add tests with the XCTest framework to ensure the issue doesn’t reoccur in the future. <h3 id="Uncover-Memory-Inefficiencies-Using-Jetsam-Event-Reports">Uncover Memory Inefficiencies Using Jetsam Event Reports</h3> Ensure that your apps use memory efficiently. When an app on iOS, iPadOS, watchOS, or tvOS uses memory inefficiently, less memory is available for other apps to remain in memory in the background. This lower available memory limits how quickly a user can switch between apps, because apps can’t resume from memory and must first complete a full app launch. When the operating system experiences low-memory conditions, and requires more memory than is currently free, the device’s operating system can terminate apps to reclaim the memory they’re using. A jetsam event report describes the system-memory conditions under which the operating system terminated an app. See Locate

Crash Reports and Memory Logs on the Device for how to access these logs and Identifying High-Memory Use with Jetsam Event Reports for information on intrepreting a jetsam event report. Jetsam event reports don’t contain stack traces of executing threads in an app, but they do contain additional system information about memory use. When your app crashes due to memory pressure, see Gathering Information About Memory Use to understand your app’s memory use patterns, and Responding to Low-Memory Warnings to learn when to lower your memory use. <h3 id="Diagnose-Problems-Using-Device-Console-Logs">Diagnose Problems Using Device Console Logs</h3> Apple devices maintain a continuous in-memory transcript of operations in the operating system and individual apps. These logs can be reviewed after an issue occurs. Some issues, such as problems installing an app, can be diagnosed by reviewing the operating system logs using the Console app on macOS. See Access Device Console Logs for instructions on accessing a device’s console log. Add log messages for your app to the operating system’s log with the Logging framework. The logs you provide can contain additional grouping and labeling information to assist with tracing an issue from the original user action. This information is useful for diagnosing complex interactions, such as debugging the interaction between your app and one of its app extensions. <aside data-v-692ba3de="" aria-label="important" class="important"> Important Don’t include privacy-sensitive information in your logs. </aside> <section data-v-1bb3e84e="" data-v-a2aafb2a="" data-v-09dcf724="" id="topics" class="contenttable alt-light"> <h2 data-v-1bb3e84e="" class="title">Topics</h2> <h3 data-v-3277df5c="" class="title">Essentials</h3> <!----><!----><!----> <a data-v-39207972="" href="/documentation/xcode/acquiring-crash-reports-and-diagnostic-logs" class="link has-adjacent-elements"> <svg data-v-7f60a732="" data-v-9d2ba25c="" aria-hidden="true" xmlns="http://www.w3.org/2000/svg" class="svg-icon article-icon topic-icon" viewBox="0 0 14 14"><g data-v-7f60a732="" transform="translate(3.616699, 1.608398)"><path data-v-7f60a732="" d="M0.0136063,12.3984375H6.948308c1.3516788,0,2.0242538-0.6856346,2.0242538-2.0438433V4.4254899
c0-0.842351-0.0979481-1.2080226-0.6203365-1.7434704L4.7542777-0.9812267
C4.2580094-1.490555,3.8466287-1.6015625,3.1152854-1.6015625H0.0136063c-1.3451493,0-2.0242538,0.6921641-2.0242538,2.0503731
v9.9057837C-2.0106475,11.7193327-1.3380729,12.3984375,0.0136063,12.3984375z M0.0593152,11.3471317
c-0.6725746,0-1.0186567-0.3591423-1.0186567-1.0121269V0.4684002c0-0.6464552,0.346082-1.0186567,1.0251865-1.0186567h2.9057837

v3.7938433c0,0.8227613,0.4113805,1.2276118,1.227612,1.2276118h3.7220149v5.8638062
c0,0.6529846-0.3460822,1.0121269-1.0251865,1.0121269H0.0593152z
M4.3167777,3.4851911
c-0.2611938,0-0.3591416-0.1044776-0.3591416-0.3656716v-3.4673507l3.761194,3.8330224H4.3167777z
M5.8839421,6.2734375H0.9277854
c-0.2350746,0-0.4113806,0.1763058-0.4113806,0.3983207c0,0.2285452,0.176306,0.404851,0.4113806,0.404851h4.9561567
c0.2285447,0,0.3983207-0.1763058,0.3983207-0.404851C6.2822628,6.4497433,6.1124868,6.2734375,5.8839421,6.2734375z
M5.8839421,8.5523558H0.9277854c-0.2350746,0-0.4113806,0.1828356-0.4113806,0.4113798

c0,0.2220154,0.176306,0.3917913,0.4113806,0.3917913h4.9561567c0.2285447,0,0.3983207-0.169776,0.3983207-0.3917913

C6.2822628,8.7351913,6.1124868,8.5523558,5.8839421,8.5523558z"></path></g></svg> Acquiring Crash Reports and Diagnostic Logs<!----> Gather crash reports and device logs from the App Store, TestFlight, and directly from devices. <!----><!----><!----> <!----> <h3 data-v-3277df5c="" class="title">Crash Reports</h3> <!----><!----><!----> <a data-v-39207972="" href="/documentation/xcode/adding-identifiable-symbol-names-to-a-crash-report" class="link has-adjacent-elements"> <svg data-v-7f60a732="" data-v-9d2ba25c="" aria-hidden="true" xmlns="http://www.w3.org/2000/svg" class="svg-icon article-icon topic-icon" viewBox="0 0 14 14"><g data-v-7f60a732="" transform="translate(3.616699, 1.608398)"><path data-v-7f60a732="" d="M0.0136063,12.3984375H6.948308c1.3516788,0,2.0242538-0.6856346,2.0242538-2.0438433V4.4254899
c0-0.842351-0.0979481-1.2080226-0.6203365-1.7434704L4.7542777-0.9812267
C4.2580094-1.490555,3.8466287-1.6015625,3.1152854-1.6015625H0.0136063c-1.3451493,0-2.0242538,0.6921641-2.0242538,2.0503731
v9.9057837C-2.0106475,11.7193327-1.3380729,12.3984375,0.0136063,12.3984375z M0.0593152,11.3471317
c-0.6725746,0-1.0186567-0.3591423-1.0186567-1.0121269V0.4684002c0-0.6464552,0.346082-1.0186567,1.0251865-1.0186567h2.9057837

v3.7938433c0,0.8227613,0.4113805,1.2276118,1.227612,1.2276118h3.7220149v5.8638062
c0,0.6529846-0.3460822,1.0121269-1.0251865,1.0121269H0.0593152z
M4.3167777,3.4851911

c-0.2611938,0-0.3591416-0.1044776-0.3591416-0.3656716v-3.4673507l3.761194,3.8330224H4.3167777z M5.8839421,6.2734375H0.9277854
c-0.2350746,0-0.4113806,0.1763058-0.4113806,0.3983207c0,0.2285452,0.176306,0.404851,0.4113806,0.404851h4.9561567
c0.2285447,0,0.3983207-0.1763058,0.3983207-0.404851C6.2822628,6.4497433,6.1124868,6.2734375,5.8839421,6.2734375z
M5.8839421,8.5523558H0.9277854c-0.2350746,0-0.4113806,0.1828356-0.4113806,0.4113798

c0,0.2220154,0.176306,0.3917913,0.4113806,0.3917913h4.9561567c0.2285447,0,0.3983207-0.169776,0.3983207-0.3917913

C6.2822628,8.7351913,6.1124868,8.5523558,5.8839421,8.5523558z"></path></g></svg> Adding Identifiable Symbol Names to a Crash Report<!----> Replace hexadecimal addresses in a crash report with function names and line numbers that correspond to your app’s code. <!----><!----><!----> <!----> <a data-v-39207972="" href="/documentation/xcode/identifying-the-cause-of-common-crashes" class="link has-adjacent-elements"> <svg data-v-7f60a732="" data-v-9d2ba25c="" aria-hidden="true" xmlns="http://www.w3.org/2000/svg" class="svg-icon api-reference-icon topic-icon" viewBox="0 0 14 14"><title data-v-7f60a732="">API Reference</title><g data-v-7f60a732="" transform="translate(2.116699, 4.455566)"><path data-v-7f60a732="" d="M-1.2412647-0.767793c0.4863523,0,0.8754342-0.3890819,0.8754342-0.8684863
c0-0.4863524-0.3890819-0.8754342-0.8754342-0.8754342S-2.116699-2.1226318-2.116699-1.6362793
C-2.116699-1.1568749-1.7276171-0.767793-1.2412647-0.767793z M1.829703-1.0804482h9.490819
c0.3126545,0,0.5627785-0.2431761,0.5627785-0.5558312c0-0.319603-0.250124-0.5627792-0.5627785-0.5627792H1.829703
c-0.319603,0-0.5627792,0.2431762-0.5627792,0.5627792C1.2669238-1.3236243,1.5101-1.0804482,1.829703-1.0804482z
M-1.2412647,3.4356809c0.4863523,0,0.8754342-0.3890817,0.8754342-0.8754342s-0.3890819-0.8754343-0.8754342-0.8754343
S-2.116699,2.0738943-2.116699,2.5602467S-1.7276171,3.4356809-1.2412647,3.4356809z M1.829703,3.1230259h9.490819
c0.3126545,0,0.5627785-0.2501242,0.5627785-0.5627792s-0.250124-0.5558312-0.5627785-0.5558312H1.829703
c-0.319603,0-0.5627792,0.243176-0.5627792,0.5558312S1.5101,3.1230259,1.829703,3.1230259z M-1.2412647,7.6391549
c0.4863523,0,0.8754342-0.3960299,0.8754342-0.8754344c0-0.4863524-0.3890819-0.8754339-0.8754342-0.8754339
S-2.116699,6.2773681-2.116699,6.7637205C-2.116699,7.243125-1.7276171,7.6391549-1.2412647,7.6391549z M1.829703,7.3195519
h9.490819c0.3126545,0,0.5627785-0.2431765,0.5627785-0.5558314c0-0.319603-0.250124-0.5627789-0.5627785-0.5627789H1.829703

c-0.319603,0-0.5627792,0.243176-
0.5627792,0.5627789C1.2669238,7.0763755,1.5101,7.3195519,1.829703,7.319
5519z"></path></g></svg> Identifying the
Cause of Common Crashes<!----><div data-v-39207972=""
class="abstract"><div data-v-702ae484="" data-v-39207972=""
class="content">Find patterns in crash reports that identify common problems,
and investigate the issue based on the
pattern. <!----><!----><!----> <!----> <div data-v-
39207972="" data-v-a2aafb2a="" class="link-block topic" data-v-
3277df5c=""><a data-v-39207972="" href="/documentation/xcode/analyzing-a-
crash-report" class="link has-adjacent-elements"><div data-v-9d2ba25c=""
data-v-39207972="" class="topic-icon-wrapper"><svg data-v-7f60a732=""
data-v-9d2ba25c="" aria-hidden="true" xmlns="http://www.w3.org/2000/svg"
class="svg-icon article-icon topic-icon" viewBox="0 0 14 14"><g data-v-
7f60a732="" transform="translate(3.616699, 1.608398)"><path data-v-
7f60a732="" d="M0.0136063,12.3984375H6.948308c1.3516788,0,2.0242538-
0.6856346,2.0242538-2.0438433V4.4254899
c0-0.842351-0.0979481-1.2080226-0.6203365-1.7434704L4.7542777-
0.9812267
C4.2580094-1.490555,3.8466287-1.6015625,3.1152854-
1.6015625H0.0136063c-1.3451493,0-2.0242538,0.6921641-
2.0242538,2.0503731
v9.9057837C-2.0106475,11.7193327-
1.3380729,12.3984375,0.0136063,12.3984375z M0.0593152,11.3471317
c-0.6725746,0-1.0186567-0.3591423-1.0186567-1.0121269V0.4684002c0-
0.6464552,0.346082-1.0186567,1.0251865-1.0186567h2.9057837

v3.7938433c0,0.8227613,0.4113805,1.2276118,1.227612,1.2276118h3.722014
9v5.8638062
c0,0.6529846-0.3460822,1.0121269-1.0251865,1.0121269H0.0593152z
M4.3167777,3.4851911
c-0.2611938,0-0.3591416-0.1044776-0.3591416-0.3656716v-
3.4673507l3.761194,3.8330224H4.3167777z
M5.8839421,6.2734375H0.9277854
c-0.2350746,0-0.4113806,0.1763058-
0.4113806,0.3983207c0,0.2285452,0.176306,0.404851,0.4113806,0.404851h4.
9561567
c0.2285447,0,0.3983207-0.1763058,0.3983207-
0.404851C6.2822628,6.4497433,6.1124868,6.2734375,5.8839421,6.2734375z
M5.8839421,8.5523558H0.9277854c-0.2350746,0-0.4113806,0.1828356-
0.4113806,0.4113798

c0,0.2220154,0.176306,0.3917913,0.4113806,0.3917913h4.9561567c0.228544
7,0,0.3983207-0.169776,0.3983207-0.3917913

C6.2822628,8.7351913,6.1124868,8.5523558,5.8839421,8.5523558z"></path>
</g></svg> Analyzing a Crash
Report<!----> <div
data-v-702ae484="" data-v-39207972="" class="content">Identify clues in a
crash report that help you diagnose
problems. <!----><!----><!----> <!----> <div data-v-
39207972="" data-v-a2aafb2a="" class="link-block topic" data-v-
3277df5c=""><a data-v-39207972="" href="/documentation/xcode/examining-
the-fields-in-a-crash-report" class="link has-adjacent-elements"><div data-v-

9d2ba25c="" data-v-39207972="" class="topic-icon-wrapper"><svg data-v-7f60a732="" data-v-9d2ba25c="" aria-hidden="true" xmlns="http://www.w3.org/2000/svg" class="svg-icon article-icon topic-icon" viewBox="0 0 14 14"><g data-v-7f60a732="" transform="translate(3.616699, 1.608398)"><path data-v-7f60a732="" d="M0.0136063,12.3984375H6.948308c1.3516788,0,2.0242538-0.6856346,2.0242538-2.0438433V4.4254899
c0-0.842351-0.0979481-1.2080226-0.6203365-1.7434704L4.7542777-0.9812267
C4.2580094-1.490555,3.8466287-1.6015625,3.1152854-1.6015625H0.0136063c-1.3451493,0-2.0242538,0.6921641-2.0242538,2.0503731
v9.9057837C-2.0106475,11.7193327-1.3380729,12.3984375,0.0136063,12.3984375z M0.0593152,11.3471317
c-0.6725746,0-1.0186567-0.3591423-1.0186567-1.0121269V0.4684002c0-0.6464552,0.346082-1.0186567,1.0251865-1.0186567h2.9057837

v3.7938433c0,0.8227613,0.4113805,1.2276118,1.227612,1.2276118h3.7220149v5.8638062
c0,0.6529846-0.3460822,1.0121269-1.0251865,1.0121269H0.0593152z M4.3167777,3.4851911
c-0.2611938,0-0.3591416-0.1044776-0.3591416-0.3656716v-3.4673507l3.761194,3.8330224H4.3167777z M5.8839421,6.2734375H0.9277854
c-0.2350746,0-0.4113806,0.1763058-0.4113806,0.3983207c0,0.2285452,0.176306,0.404851,0.4113806,0.404851h4.9561567
c0.2285447,0,0.3983207-0.1763058,0.3983207-0.404851C6.2822628,6.4497433,6.1124868,6.2734375,5.8839421,6.2734375z
M5.8839421,8.5523558H0.9277854c-0.2350746,0-0.4113806,0.1828356-0.4113806,0.4113798

c0,0.2220154,0.176306,0.3917913,0.4113806,0.3917913h4.9561567c0.2285447,0,0.3983207-0.169776,0.3983207-0.3917913

C6.2822628,8.7351913,6.1124868,8.5523558,5.8839421,8.5523558z"></path></g></svg> Examining the Fields in a Crash Report<!----> Understand the structure of a crash report and the information each field contains. <!----><!----><!----> <!----> <a data-v-39207972="" href="/documentation/xcode/understanding-the-exception-types-in-a-crash-report" class="link has-adjacent-elements"> <svg data-v-7f60a732="" data-v-9d2ba25c="" aria-hidden="true" xmlns="http://www.w3.org/2000/svg" class="svg-icon article-icon topic-icon" viewBox="0 0 14 14"><g data-v-7f60a732="" transform="translate(3.616699, 1.608398)"><path data-v-7f60a732="" d="M0.0136063,12.3984375H6.948308c1.3516788,0,2.0242538-0.6856346,2.0242538-2.0438433V4.4254899
c0-0.842351-0.0979481-1.2080226-0.6203365-1.7434704L4.7542777-0.9812267

C4.2580094-1.490555,3.8466287-1.6015625,3.1152854-
1.6015625H0.0136063c-1.3451493,0-2.0242538,0.6921641-
2.0242538,2.0503731
v9.9057837C-2.0106475,11.7193327-
1.3380729,12.3984375,0.0136063,12.3984375z M0.0593152,11.3471317
c-0.6725746,0-1.0186567-0.3591423-1.0186567-1.0121269V0.4684002c0-
0.6464552,0.346082-1.0186567,1.0251865-1.0186567h2.9057837

v3.7938433c0,0.8227613,0.4113805,1.2276118,1.227612,1.2276118h3.722014
9v5.8638062
c0,0.6529846-0.3460822,1.0121269-1.0251865,1.0121269H0.0593152z
M4.3167777,3.4851911
c-0.2611938,0-0.3591416-0.1044776-0.3591416-0.3656716v-
3.4673507l3.761194,3.8330224H4.3167777z
M5.8839421,6.2734375H0.9277854
c-0.2350746,0-0.4113806,0.1763058-
0.4113806,0.3983207c0,0.2285452,0.176306,0.404851,0.4113806,0.404851h4.
9561567
c0.2285447,0,0.3983207-0.1763058,0.3983207-
0.404851C6.2822628,6.4497433,6.1124868,6.2734375,5.8839421,6.2734375z
M5.8839421,8.5523558H0.9277854c-0.2350746,0-0.4113806,0.1828356-
0.4113806,0.4113798

c0,0.2220154,0.176306,0.3917913,0.4113806,0.3917913h4.9561567c0.228544
7,0,0.3983207-0.169776,0.3983207-0.3917913

C6.2822628,8.7351913,6.1124868,8.5523558,5.8839421,8.5523558z"></path>
</g></svg> Understanding the Exception
Types in a Crash Report<!----><div data-v-39207972=""
class="abstract"><div data-v-702ae484="" data-v-39207972=""
class="content">Learn what the exception type tells you about why your app
crashed. <!----><!----><!----> <!----> <div
data-v-3277df5c="" data-v-a2aafb2a="" class="contenttable-section"><div
data-v-3277df5c="" class="section-title"><h3 data-v-3277df5c=""
class="title">Device Logs</h3> <div data-v-3277df5c="" class="section-
content"><!----><!----><!----><div data-v-39207972="" data-v-a2aafb2a=""
class="link-block topic" data-v-3277df5c=""><a data-v-39207972=""
href="/documentation/xcode/identifying-high-memory-use-with-jetsam-event-
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0.9812267
C4.2580094-1.490555,3.8466287-1.6015625,3.1152854-
1.6015625H0.0136063c-1.3451493,0-2.0242538,0.6921641-
2.0242538,2.0503731
v9.9057837C-2.0106475,11.7193327-
1.3380729,12.3984375,0.0136063,12.3984375z M0.0593152,11.3471317
c-0.6725746,0-1.0186567-0.3591423-1.0186567-1.0121269V0.4684002c0-
0.6464552,0.346082-1.0186567,1.0251865-1.0186567h2.9057837

v3.7938433c0,0.8227613,0.4113805,1.2276118,1.227612,1.2276118h3.7220149v5.8638062
c0,0.6529846-0.3460822,1.0121269-1.0251865,1.0121269H0.0593152z
M4.3167777,3.4851911
c-0.2611938,0-0.3591416-0.1044776-0.3591416-0.3656716v-3.4673507l3.761194,3.8330224H4.3167777z
M5.8839421,6.2734375H0.9277854
c-0.2350746,0-0.4113806,0.1763058-0.4113806,0.3983207c0,0.2285452,0.176306,0.404851,0.4113806,0.404851h4.9561567
c0.2285447,0,0.3983207-0.1763058,0.3983207-0.404851C6.2822628,6.4497433,6.1124868,6.2734375,5.8839421,6.2734375z
M5.8839421,8.5523558H0.9277854c-0.2350746,0-0.4113806,0.1828356-0.4113806,0.4113798

c0,0.2220154,0.176306,0.3917913,0.4113806,0.3917913h4.9561567c0.2285447,0,0.3983207-0.169776,0.3983207-0.3917913

C6.2822628,8.7351913,6.1124868,8.5523558,5.8839421,8.5523558z"></path></g></svg> Identifying High-Memory Use with Jetsam Event Reports<!----> Discover why the operating system terminated your app when available memory was low. <!----><!----><!----> <!----> <a data-v-39207972="" href="/documentation/os/logging" class="link has-adjacent-elements"> <svg data-v-7f60a732="" data-v-9d2ba25c="" aria-hidden="true" xmlns="http://www.w3.org/2000/svg" class="svg-icon article-icon topic-icon" viewBox="0 0 14 14"><g data-v-7f60a732="" transform="translate(3.616699, 1.608398)"><path data-v-7f60a732="" d="M0.0136063,12.3984375H6.948308c1.3516788,0,2.0242538-0.6856346,2.0242538-2.0438433V4.4254899
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C4.2580094-1.490555,3.8466287-1.6015625,3.1152854-1.6015625H0.0136063c-1.3451493,0-2.0242538,0.6921641-2.0242538,2.0503731
v9.9057837C-2.0106475,11.7193327-1.3380729,12.3984375,0.0136063,12.3984375z M0.0593152,11.3471317
c-0.6725746,0-1.0186567-0.3591423-1.0186567-1.0121269V0.4684002c0-0.6464552,0.346082-1.0186567,1.0251865-1.0186567h2.9057837

v3.7938433c0,0.8227613,0.4113805,1.2276118,1.227612,1.2276118h3.7220149v5.8638062
c0,0.6529846-0.3460822,1.0121269-1.0251865,1.0121269H0.0593152z
M4.3167777,3.4851911
c-0.2611938,0-0.3591416-0.1044776-0.3591416-0.3656716v-3.4673507l3.761194,3.8330224H4.3167777z
M5.8839421,6.2734375H0.9277854
c-0.2350746,0-0.4113806,0.1763058-0.4113806,0.3983207c0,0.2285452,0.176306,0.404851,0.4113806,0.404851h4.9561567

c0.2285447,0,0.3983207-0.1763058,0.3983207-
0.404851C6.2822628,6.4497433,6.1124868,6.2734375,5.8839421,6.2734375z
M5.8839421,8.5523558H0.9277854c-0.2350746,0-0.4113806,0.1828356-
0.4113806,0.4113798

c0,0.2220154,0.176306,0.3917913,0.4113806,0.3917913h4.9561567c0.228544
7,0,0.3983207-0.169776,0.3983207-0.3917913

C6.2822628,8.7351913,6.1124868,8.5523558,5.8839421,8.5523558z"></path>
</g></svg> <span
data-v-39207972="">Logging<!----><div data-v-39207972=""
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class="content">Capture telemetry from your app for debugging and
performance analysis using the unified logging system. <!----><!----
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app" class="link has-adjacent-elements"><div data-v-9d2ba25c="" data-v-
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C4.2580094-1.490555,3.8466287-1.6015625,3.1152854-
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2.0242538,2.0503731
v9.9057837C-2.0106475,11.7193327-
1.3380729,12.3984375,0.0136063,12.3984375z M0.0593152,11.3471317
c-0.6725746,0-1.0186567-0.3591423-1.0186567-1.0121269V0.4684002c0-
0.6464552,0.346082-1.0186567,1.0251865-1.0186567h2.9057837

v3.7938433c0,0.8227613,0.4113805,1.2276118,1.227612,1.2276118h3.722014
9v5.8638062
c0,0.6529846-0.3460822,1.0121269-1.0251865,1.0121269H0.0593152z
M4.3167777,3.4851911
c-0.2611938,0-0.3591416-0.1044776-0.3591416-0.3656716v-
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M5.8839421,6.2734375H0.9277854
c-0.2350746,0-0.4113806,0.1763058-
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9561567
c0.2285447,0,0.3983207-0.1763058,0.3983207-
0.404851C6.2822628,6.4497433,6.1124868,6.2734375,5.8839421,6.2734375z

M5.8839421,8.5523558H0.9277854c-0.2350746,0-0.4113806,0.1828356-0.4113806,0.4113798

c0,0.2220154,0.176306,0.3917913,0.4113806,0.3917913h4.9561567c0.2285447,0,0.3983207-0.169776,0.3983207-0.3917913

C6.2822628,8.7351913,6.1124868,8.5523558,5.8839421,8.5523558z"></path></g></svg> Diagnosing and Resolving Bugs in Your Running App<!----> Inspect your running app to isolate bugs, locate crashes, identify excess system resource usage, visualize memory bugs, and investigate view layout problems. <!----><!----><!----> <!----> <a data-v-39207972="" href="/documentation/xcode/setting-breakpoints-to-pause-your-running-app" class="link has-adjacent-elements"> <svg data-v-7f60a732="" data-v-9d2ba25c="" aria-hidden="true" xmlns="http://www.w3.org/2000/svg" class="svg-icon article-icon topic-icon" viewBox="0 0 14 14"><g data-v-7f60a732="" transform="translate(3.616699, 1.608398)"><path data-v-7f60a732="" d="M0.0136063,12.3984375H6.948308c1.3516788,0,2.0242538-0.6856346,2.0242538-2.0438433V4.4254899
c0-0.842351-0.0979481-1.2080226-0.6203365-1.7434704L4.7542777-0.9812267
C4.2580094-1.490555,3.8466287-1.6015625,3.1152854-1.6015625H0.0136063c-1.3451493,0-2.0242538,0.6921641-2.0242538,2.0503731
v9.9057837C-2.0106475,11.7193327-1.3380729,12.3984375,0.0136063,12.3984375z M0.0593152,11.3471317
c-0.6725746,0-1.0186567-0.3591423-1.0186567-1.0121269V0.4684002c0-0.6464552,0.346082-1.0186567,1.0251865-1.0186567h2.9057837

v3.7938433c0,0.8227613,0.4113805,1.2276118,1.227612,1.2276118h3.7220149v5.8638062
c0,0.6529846-0.3460822,1.0121269-1.0251865,1.0121269H0.0593152z M4.3167777,3.4851911
c-0.2611938,0-0.3591416-0.1044776-0.3591416-0.3656716v-3.4673507l3.761194,3.8330224H4.3167777z M5.8839421,6.2734375H0.9277854
c-0.2350746,0-0.4113806,0.1763058-0.4113806,0.3983207c0,0.2285452,0.176306,0.404851,0.4113806,0.404851h4.9561567
c0.2285447,0,0.3983207-0.1763058,0.3983207-0.404851C6.2822628,6.4497433,6.1124868,6.2734375,5.8839421,6.2734375z
M5.8839421,8.5523558H0.9277854c-0.2350746,0-0.4113806,0.1828356-0.4113806,0.4113798

c0,0.2220154,0.176306,0.3917913,0.4113806,0.3917913h4.9561567c0.2285447,0,0.3983207-0.169776,0.3983207-0.3917913

C6.2822628,8.7351913,6.1124868,8.5523558,5.8839421,8.5523558z"></path></g></svg> Setting Breakpoints to Pause Your Running App<!----><div data-v-39207972=""

class="abstract"> Specify where your app pauses when running the debugger to investigate bugs. <!----><!----><!----> <!----> <a data-v-39207972="" href="/documentation/xcode/stepping-through-code-and-inspecting-variables-to-isolate-bugs" class="link has-adjacent-elements"> <svg data-v-7f60a732="" data-v-9d2ba25c="" aria-hidden="true" xmlns="http://www.w3.org/2000/svg" class="svg-icon article-icon topic-icon" viewBox="0 0 14 14"><g data-v-7f60a732="" transform="translate(3.616699, 1.608398)"><path data-v-7f60a732="" d="M0.0136063,12.3984375H6.948308c1.3516788,0,2.0242538-0.6856346,2.0242538-2.0438433V4.4254899
c0-0.842351-0.0979481-1.2080226-0.6203365-1.7434704L4.7542777-0.9812267
C4.2580094-1.490555,3.8466287-1.6015625,3.1152854-1.6015625H0.0136063c-1.3451493,0-2.0242538,0.6921641-2.0242538,2.0503731
v9.9057837C-2.0106475,11.7193327-1.3380729,12.3984375,0.0136063,12.3984375z M0.0593152,11.3471317
c-0.6725746,0-1.0186567-0.3591423-1.0186567-1.0121269V0.4684002c0-0.6464552,0.346082-1.0186567,1.0251865-1.0186567h2.9057837

v3.7938433c0,0.8227613,0.4113805,1.2276118,1.227612,1.2276118h3.7220149v5.8638062
c0,0.6529846-0.3460822,1.0121269-1.0251865,1.0121269H0.0593152z M4.3167777,3.4851911
c-0.2611938,0-0.3591416-0.1044776-0.3591416-0.3656716v-3.4673507l3.761194,3.8330224H4.3167777z M5.8839421,6.2734375H0.9277854
c-0.2350746,0-0.4113806,0.1763058-0.4113806,0.3983207c0,0.2285452,0.176306,0.404851,0.4113806,0.404851h4.9561567
c0.2285447,0,0.3983207-0.1763058,0.3983207-0.404851C6.2822628,6.4497433,6.1124868,6.2734375,5.8839421,6.2734375z
M5.8839421,8.5523558H0.9277854c-0.2350746,0-0.4113806,0.1828356-0.4113806,0.4113798

c0,0.2220154,0.176306,0.3917913,0.4113806,0.3917913h4.9561567c0.2285447,0,0.3983207-0.169776,0.3983207-0.3917913

C6.2822628,8.7351913,6.1124868,8.5523558,5.8839421,8.5523558z"></path></g></svg> Stepping Through Code and Inspecting Variables to Isolate Bugs<!----> Find the cause of your bugs by watching variables change as you step through your source code in the debugger. <!----><!----><!----> <!----> <a data-v-39207972="" href="/documentation/xcode/building-your-app-to-include-debugging-information" class="link has-adjacent-elements"> <svg data-v-7f60a732="" data-v-9d2ba25c="" aria-hidden="true" xmlns="http://www.w3.org/2000/svg" class="svg-icon article-icon topic-icon" viewBox="0 0 14 14"><g data-v-

7f60a732="" transform="translate(3.616699, 1.608398)"><path data-v-7f60a732="" d="M0.0136063,12.3984375H6.948308c1.3516788,0,2.0242538-0.6856346,2.0242538-2.0438433V4.4254899
c0-0.842351-0.0979481-1.2080226-0.6203365-1.7434704L4.7542777-0.9812267
C4.2580094-1.490555,3.8466287-1.6015625,3.1152854-1.6015625H0.0136063c-1.3451493,0-2.0242538,0.6921641-2.0242538,2.0503731
v9.9057837C-2.0106475,11.7193327-1.3380729,12.3984375,0.0136063,12.3984375z M0.0593152,11.3471317
c-0.6725746,0-1.0186567-0.3591423-1.0186567-1.0121269V0.4684002c0-0.6464552,0.346082-1.0186567,1.0251865-1.0186567h2.9057837

v3.7938433c0,0.8227613,0.4113805,1.2276118,1.227612,1.2276118h3.7220149v5.8638062
c0,0.6529846-0.3460822,1.0121269-1.0251865,1.0121269H0.0593152z M4.3167777,3.4851911
c-0.2611938,0-0.3591416-0.1044776-0.3591416-0.3656716v-3.4673507l3.761194,3.8330224H4.3167777z M5.8839421,6.2734375H0.9277854
c-0.2350746,0-0.4113806,0.1763058-0.4113806,0.3983207c0,0.2285452,0.176306,0.404851,0.4113806,0.404851h4.9561567
c0.2285447,0,0.3983207-0.1763058,0.3983207-0.404851C6.2822628,6.4497433,6.1124868,6.2734375,5.8839421,6.2734375z
M5.8839421,8.5523558H0.9277854c-0.2350746,0-0.4113806,0.1828356-0.4113806,0.4113798

c0,0.2220154,0.176306,0.3917913,0.4113806,0.3917913h4.9561567c0.2285447,0,0.3983207-0.169776,0.3983207-0.3917913

C6.2822628,8.7351913,6.1124868,8.5523558,5.8839421,8.5523558z"></path></g></svg> Building Your App to Include Debugging Information<!----> Configure Xcode to produce the symbol information for debugging and crash reports. <!----><!----><!----> <!----> <a data-v-39207972="" href="/documentation/xcode/diagnosing-memory-thread-and-crash-issues-early" class="link has-adjacent-elements"> <svg data-v-7f60a732="" data-v-9d2ba25c="" aria-hidden="true" xmlns="http://www.w3.org/2000/svg" class="svg-icon api-reference-icon topic-icon" viewBox="0 0 14 14"><title data-v-7f60a732="">API Reference</title><g data-v-7f60a732="" transform="translate(2.116699, 4.455566)"><path data-v-7f60a732="" d="M-1.2412647-0.767793c0.4863523,0,0.8754342-0.3890819,0.8754342-0.8684863
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c-0.319603,0-0.5627792,0.2431762-0.5627792,0.5627792C1.2669238-1.3236243,1.5101-1.0804482,1.829703-1.0804482z
M-1.2412647,3.4356809c0.4863523,0,0.8754342-0.3890817,0.8754342-0.8754342s-0.3890819-0.8754343-0.8754342-0.8754343
S-2.116699,2.0738943-2.116699,2.5602467S-1.7276171,3.4356809-1.2412647,3.4356809z M1.829703,3.1230259h9.490819
c0.3126545,0,0.5627785-0.2501242,0.5627785-0.5627792s-0.250124-0.5558312-0.5627785-0.5558312H1.829703
c-0.319603,0-0.5627792,0.243176-0.5627792,0.5558312S1.5101,3.1230259,1.829703,3.1230259z M-1.2412647,7.6391549
c0.4863523,0,0.8754342-0.3960299,0.8754342-0.8754344c0-0.4863524-0.3890819-0.8754339-0.8754342-0.8754339
S-2.116699,6.2773681-2.116699,6.7637205C-2.116699,7.243125-1.7276171,7.6391549-1.2412647,7.6391549z M1.829703,7.3195519
h9.490819c0.3126545,0,0.5627785-0.2431765,0.5627785-0.5558314c0-0.319603-0.250124-0.5627789-0.5627785-0.5627789H1.829703
c-0.319603,0-0.5627792,0.243176-0.5627792,0.5627789C1.2669238,7.0763755,1.5101,7.3195519,1.829703,7.3195519z"></path></g></svg> Diagnosing Memory, Thread, and Crash Issues Early<!----> Identify runtime crashes and undefined behaviors in your app during testing using Xcode’s sanitizer tools. <!----><!----><!----> <!----> </section><!----></main> Current page is Diagnosing Issues Using Crash Reports and Device Logs <!----> <section data-v-4ba26326="" data-v-2fddaabf="" id="globalfooter-wrapper" data-v-24f4912f=""><footer data-v-4ba26326="" id="globalfooter" role="contentinfo"><nav data-v-4ba26326="" class="footer-breadory"><a data-v-4ba26326="" href="https://apple.com/" class="home breadcrumbs-home">□Apple<section data-v-4ba26326="" class="breadcrumbs"><ol data-v-4ba26326="" class="breadcrumbs-list">
Developer Documentation </section> <h3 data-v-4ba26326=""> Platforms </h3><ul data-v-4ba26326=""><li data-v-4ba26326=""><a data-v-4ba26326="" href="/ios/"> iOS <li data-v-4ba26326=""><a data-v-4ba26326="" href="/ipados/"> iPadOS <li data-v-4ba26326=""><a data-v-4ba26326="" href="/macos/"> macOS <li data-v-4ba26326=""><a data-v-4ba26326="" href="/tvos/"> tvOS <li data-v-4ba26326=""><a data-v-4ba26326="" href="/watchos/"> watchOS <h3 data-v-4ba26326=""> Tools </h3><ul data-v-4ba26326=""><li data-v-4ba26326=""><a data-v-4ba26326="" href="/swift/"> Swift <li data-v-4ba26326=""><a data-v-4ba26326="" href="/swiftui/"> SwiftUI <li data-v-4ba26326=""><a data-v-4ba26326="" href="/swift-playgrounds/"> Swift Playgrounds <li data-v-4ba26326=""><a data-v-4ba26326="" href="/testflight/"> TestFlight <li data-v-4ba26326=""><a data-v-4ba26326="" href="/xcode/"> Xcode <li data-v-4ba26326=""><a data-v-4ba26326="" href="/xcode-cloud/"> Xcode Cloud <li data-v-4ba26326=""><a data-

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<li role="search" class="ac-gn-item ac-gn-item-menu ac-gn-search">
<aside id="ac-gn-searchview" role="search" data-analytics-region="search" class="ac-gn-searchview"> <form id="ac-gn-searchform" action="/search/" method="get" class="ac-gn-searchform"> <input id="ac-gn-searchform-input" type="text" name="q" aria-label="Search Developer" placeholder="Search Developer" autocorrect="off" autocapitalize="off" autocomplete="off" spellcheck="false" role="combobox" aria-autocomplete="list" aria-expanded="true" aria-owns="quicklinks suggestions" class="ac-gn-searchform-input"><button id="ac-gn-searchform-submit" type="submit" disabled="disabled" aria-label="Submit Search" class="ac-gn-searchform-submit"></button><button id="ac-gn-searchform-reset" type="reset" disabled="disabled" aria-label="Clear Search" class="ac-gn-searchform-reset"></button> </form><button id="ac-gn-searchview-close-small" aria-label="Cancel Search" class="ac-gn-searchview-close ac-gn-searchview-close-small"> Cancel </button> <aside id="ac-gn-searchresults" data-string-quicklinks="Quick Links" data-string-suggestions="Suggested Searches" data-string-noresults="" class="ac-gn-searchresults"></aside> <button id="ac-gn-searchview-close" aria-label="Cancel Search" class="ac-gn-searchview-close"></button></aside> </nav> <nav data-v-3b7b98ba="" data-v-5836c190="" data-v-31b53fce="" data-v-f59e0e60="" role="navigation" class="nav documentation-nav theme-dark apple-documentation-nav theme-dark nav--in-breakpoint-range nav--solid-background nav--fullwidth-border nav--is-wide-format" aria-label="API Reference"> <!----> <button data-v-5836c190="" data-v-3b7b98ba="" aria-label="Open documentation navigator" class="sidenav-toggle"><svg data-v-7f60a732="" data-v-5836c190="" aria-hidden="true" xmlns="http://www.w3.org/2000/svg" class="svg-icon sidenav-icon icon-inline sidenav-icon" viewBox="0 0 14 14" height="14" data-v-3b7b98ba=""><path data-v-7f60a732="" d="M11.632 11.991c0.577 0 1.010-0.143 1.299-0.43 0.287-0.286 0.432-0.713 0.432-1.278v-6.562c0-0.565-0.145-0.991-0.433-1.28s-0.721-0.433-1.298-0.433h-9.264c-0.569 0-1 0.144-1.292 0.43s-0.439 0.714-0.439 1.283v6.562c0 0.569 0.147 0.996 0.439 1.28s0.723 0.427 1.292 0.427h9.264zM4.837 11.030h-2.43c-0.258 0-0.455-0.068-0.591-0.205s-0.206-0.34-0.206-0.609v-6.425c0-0.269 0.068-0.472 0.205-0.609s0.335-0.205 0.592-0.205h2.43v8.053zM11.593 11.030h-5.828v-8.053h5.827c0.258 0 0.458 0.068 0.598 0.205s0.211 0.34 0.211 0.609v6.425c0

0.27-0.070 0.473-0.211 0.609s-0.339 0.205-0.597 0.205zM3.791 4.963c0.091 0 0.168-0.033 0.233-0.1 0.060-0.057 0.097-0.138 0.097-0.228s-0.037-0.17-0.097-0.228l-0-0c-0.058-0.058-0.139-0.094-0.228-0.094-0.002 0-0.004 0-0.005 0h-1.132c-0.001-0-0.002-0-0.003-0-0.088 0-0.168 0.036-0.225 0.094l-0 0c-0.060 0.057-0.097 0.138-0.097 0.228s0.037 0.17 0.097 0.228l0 0c0.064 0.067 0.14 0.1 0.227 0.1h1.132zM3.791 6.379c0.091 0 0.168-0.032 0.233-0.097 0.060-0.057 0.098-0.137 0.098-0.226s-0.037-0.17-0.098-0.226l-0-0c-0.058-0.058-0.139-0.094-0.228-0.094-0.002 0-0.004 0-0.005 0h-1.132c-0.001-0-0.002-0-0.003-0-0.088 0-0.168 0.036-0.225 0.094l-0 0c-0.060 0.057-0.097 0.137-0.097 0.226s0.037 0.169 0.097 0.226l0 0c0.057 0.060 0.137 0.097 0.226 0.097 0 0 0.001 0 0.001 0h1.132zM3.791 7.796c0.091 0 0.168-0.032 0.233-0.097 0.059-0.056 0.096-0.135 0.097-0.222v-0c0-0.002 0-0.004 0-0.007 0-0.088-0.037-0.168-0.096-0.224l-0-0c-0.058-0.058-0.139-0.094-0.228-0.094-0.002 0-0.004 0-0.005 0h-1.132c-0.001-0-0.002-0-0.003-0-0.088 0-0.168 0.036-0.225 0.094l-0 0c-0.060 0.056-0.097 0.136-0.097 0.224 0 0.002 0 0.005 0 0.007l-0-0c0 0.083 0.032 0.158 0.097 0.222 0.057 0.060 0.137 0.097 0.225 0.097 0.001 0 0.001 0 0.002-0h1.132z"></path></svg></button> <a data-v-5836c190="" href="/documentation/technologies" class="nav-title-link" data-v-3b7b98ba=""> Documentation <a data-v-3b7b98ba="" href="#" role="button" class="nav-ax-toggle">Open Menu <ul data-v-3acd447b="" data-v-0d4c1e86="" data-v-5836c190="" data-previous-menu-children-count="0" class="nav-menu-items hierarchy" aria-label="Breadcrumbs" data-v-3b7b98ba=""><!----><!----><li data-v-c1dad078="" data-v-0d4c1e86="" class="nav-menu-item hierarchy-item nav-menu-item--animated" data-v-eb8f9ef0="" data-v-3acd447b="">/ Xcode <ul data-v-3acd447b="" data-v-5836c190="" data-previous-menu-children-count="1" class="nav-menu-items nav-menu-settings" data-v-3b7b98ba=""><!----><!----><li data-v-c1dad078="" data-v-1ca2752b="" data-v-31b53fce="" class="nav-menu-item nav-menu-setting nav-menu-item--animated" data-v-3acd447b=""><label data-v-1ca2752b="" data-v-c1dad078="" for="version-label" class="nav-menu-setting-label"> API Changes: </label><a data-v-1ca2752b="" data-v-c1dad078="" id="version-label" href="#" class="version-label nav-menu-link noclose version-label-show"> Show <svg data-v-7f60a732="" data-v-1ca2752b="" aria-hidden="true" xmlns="http://www.w3.org/2000/svg" class="svg-icon inline-chevron-down-icon toggle-icon icon-inline" viewBox="0 0 14 14" data-v-c1dad078=""><path data-v-7f60a732="" d="m6.94042969 10.6855469c.17089843 0 .34179687-.0683594.45800781-.1982422l5.2910156-5.42089845c.116211-.11621094.1845703-.26660156.1845703-.4375 0-.35546875-.2666015-.62890625-.6220703-.62890625-.1708984 0-.328125.06835938-.4443359.17773438l-4.86718751 4.9765625-4.87402344-4.9765625c-.109375-.109375-.26660156-.17773438-.44433594-.17773438-.35546875 0-.62207031.2734375-.62207031.62890625 0 .17089844.06835938.32128906.18457031.44433594l5.29101563 5.41406251c.12988281.1298828.28710937.1982422.46484375.1982422z"></path></svg>
<!----> <a data-v-3b7b98ba="" href="#" tabindex="-1" aria-hidden="true" class="nav-menucta"> <!----></nav><div data-v-97c1bc40="" data-v-f59e0e60="" class="adjustable-sidebar-width full-width-

container topic-wrapper"> <nav data-v-6bb3a4bb="" data-v-f59e0e60="" aria-labelledby="<root>" class="navigator" data-v-97c1bc40="" style="display: none;"> <button data-v-3769e00e="" data-v-14aa6277="" aria-label="Close documentation navigator" class="close-card-mobile"><svg data-v-7f60a732="" data-v-3769e00e="" aria-hidden="true" xmlns="http://www.w3.org/2000/svg" class="svg-icon sidenav-icon icon-inline close-icon" viewBox="0 0 14 14" height="14" data-v-14aa6277=""><path data-v-7f60a732="" d="M11.632 11.991c0.577 0 1.010-0.143 1.299-0.43 0.287-0.286 0.432-0.713 0.432-1.278v-6.562c0-0.565-0.145-0.991-0.433-1.28s-0.721-0.433-1.298-0.433h-9.264c-0.569 0-1 0.144-1.292 0.43s-0.439 0.714-0.439 1.283v6.562c0 0.569 0.147 0.996 0.439 1.28s0.723 0.427 1.292 0.427h9.264zM4.837 11.030h-2.43c-0.258 0-0.455-0.068-0.591-0.205s-0.206-0.34-0.206-0.609v-6.425c0-0.269 0.068-0.472 0.205-0.609s0.335-0.205 0.592-0.205h2.43v8.053zM11.593 11.030h-5.828v-8.053h5.827c0.258 0 0.458 0.068 0.598 0.205s0.211 0.34 0.211 0.609v6.425c0 0.27-0.070 0.473-0.211 0.609s-0.339 0.205-0.597 0.205zM3.791 4.963c0.091 0 0.168-0.033 0.233-0.1 0.060-0.057 0.097-0.138 0.097-0.228s-0.037-0.17-0.097-0.228l-0-0c-0.058-0.058-0.139-0.094-0.228-0.094-0.002 0-0.004 0-0.005 0h-1.132c-0.001-0-0.002-0-0.003-0-0.088 0-0.168 0.036-0.225 0.094l-0 0c-0.060 0.057-0.097 0.138-0.097 0.228s0.037 0.17 0.097 0.228l0 0c0.064 0.067 0.14 0.1 0.227 0.1h1.132zM3.791 6.379c0.091 0 0.168-0.032 0.233-0.097 0.060-0.057 0.098-0.137 0.098-0.226s-0.037-0.17-0.098-0.226l-0-0c-0.058-0.058-0.139-0.094-0.228-0.094-0.002 0-0.004 0-0.005 0h-1.132c-0.001-0-0.002-0-0.003-0-0.088 0-0.168 0.036-0.225 0.094l-0 0c-0.060 0.057-0.097 0.137-0.097 0.226s0.037 0.169 0.097 0.226l0 0c0.057 0.060 0.137 0.097 0.226 0.097 0 0 0.001 0 0.001 0h1.132zM3.791 7.796c0.091 0 0.168-0.032 0.233-0.097 0.059-0.056 0.096-0.135 0.097-0.222v-0c0-0.002 0-0.004 0-0.007 0-0.088-0.037-0.168-0.096-0.224l-0-0c-0.058-0.058-0.139-0.094-0.228-0.094-0.002 0-0.004 0-0.005 0h-1.132c-0.001-0-0.002-0-0.003-0-0.088 0-0.168 0.036-0.225 0.094l-0 0c-0.060 0.056-0.097 0.136-0.097 0.224 0 0.002 0 0.005 0 0.007l-0-0c0 0.083 0.032 0.158 0.097 0.222 0.057 0.060 0.137 0.097 0.225 0.097 0.001 0 0.001 0 0.002-0h1.132z"></path></svg></button><a data-v-3769e00e="" href="/documentation/xcode" class="navigator-head router-link-exact-active router-link-active" id="<root>" data-v-14aa6277="" aria-current="page"><h2 data-v-3769e00e="" class="card-link"> Xcode </h2> <!----> To navigate the symbols, press Up Arrow, Down Arrow, Left Arrow or Right Arrow <!----> <!----> <!----><span data-v-354ee602=""

id="label--196255993" hidden="hidden"> 1 of 74 symbols inside <h3 data-v-354ee602="" id="-196255993" tabindex="0" aria-describedby="label--196255993 <root> usage--196255993" class="leaf-link"> Xcode IDE </h3><!----> To navigate the symbols, press Up Arrow, Down Arrow, Left Arrow or Right Arrow <button data-v-354ee602="" tabindex="-1" aria-labelledby="1551387655" aria-expanded="false" aria-describedby="label-1551387655 <root> label-parent-1551387655" class="tree-toggle"><svg data-v-7f60a732="" data-v-354ee602="" aria-hidden="true" xmlns="http://www.w3.org/2000/svg" class="svg-icon inline-chevron-right-icon icon-inline chevron" viewBox="0 0 14 14"><path data-v-7f60a732="" d="m4.81347656 13.1269531c.22558594 0 .41015625-.0820312.56738282-.2324219l5.31835942-5.19531245c.1845703-.19140625.2802734-.38964844.2802734-.63574219 0-.23925781-.0888672-.45117187-.2802734-.62890625l-5.31835942-5.20214843c-.15722657-.15039063-.34179688-.23242188-.56738282-.23242188-.45800781 0-.81347656.35546875-.81347656.80664062 0 .21875.09570312.43066407.24609375.58789063l4.79199219 4.67578125-4.79199219 4.6621094c-.15722656.1640625-.24609375.3623047-.24609375.5878906 0 .4511719.35546875.8066406.81347656.8066406z"></path></svg></button> <svg data-v-7f60a732="" data-v-7334d1b4="" aria-hidden="true" xmlns="http://www.w3.org/2000/svg" class="svg-icon collection-icon icon-inline" viewBox="0 0 14 14"><title data-v-7f60a732="">Collection</title><g data-v-7f60a732="" transform="translate(2.116699, 4.455566)"><path data-v-7f60a732="" d="M-1.2412647-0.767793c0.4863523,0,0.8754342-0.3890819,0.8754342-0.8684863 c0-0.4863524-0.3890819-0.8754342-0.8754342-0.8754342S-2.116699-2.1226318-2.116699-1.6362793 C-2.116699-1.1568749-1.7276171-0.767793-1.2412647-0.767793z M1.829703-1.0804482h9.490819 c0.3126545,0,0.5627785-0.2431761,0.5627785-0.5558312c0-0.319603-0.250124-0.5627792-0.5627785-0.5627792H1.829703 c-0.319603,0-0.5627792,0.2431762-0.5627792,0.5627792C1.2669238-1.3236243,1.5101-1.0804482,1.829703-1.0804482z M-1.2412647,3.4356809c0.4863523,0,0.8754342-0.3890817,0.8754342-0.8754342s-0.3890819-0.8754343-0.8754342-0.8754343 S-2.116699,2.0738943-2.116699,2.5602467S-1.7276171,3.4356809-1.2412647,3.4356809z M1.829703,3.1230259h9.490819 c0.3126545,0,0.5627785-0.2501242,0.5627785-0.5627792s-0.250124-0.5558312-0.5627785-0.5558312H1.829703 c-0.319603,0-0.5627792,0.243176-0.5627792,0.5558312S1.5101,3.1230259,1.829703,3.1230259z M-1.2412647,7.6391549 c0.4863523,0,0.8754342-0.3960299,0.8754342-0.8754344c0-0.4863524-0.3890819-0.8754339-0.8754342-0.8754339

S-2.116699,6.2773681-2.116699,6.7637205C-2.116699,7.243125-1.7276171,7.6391549-1.2412647,7.6391549z M1.829703,7.3195519
h9.490819c0.3126545,0,0.5627785-0.2431765,0.5627785-0.5558314c0-0.319603-0.250124-0.5627789-0.5627785-0.5627789H1.829703
c-0.319603,0-0.5627792,0.243176-0.5627792,0.5627789C1.2669238,7.0763755,1.5101,7.3195519,1.829703,7.3195519z"></path></g></svg> , containing 9 symbols 2 of 74 symbols inside <a data-v-354ee602="" href="/documentation/xcode/projects-and-workspaces" class="leaf-link" id="1551387655" tabindex="-1" aria-describedby="label-1551387655 <root> label-parent-1551387655 usage-1551387655"> Projects and Workspaces <!----> To navigate the symbols, press Up Arrow, Down Arrow, Left Arrow or Right Arrow <button data-v-354ee602="" tabindex="-1" aria-labelledby="-1926011523" aria-expanded="false" aria-describedby="label--1926011523 <root> label-parent--1926011523" class="tree-toggle"><svg data-v-7f60a732="" data-v-354ee602="" aria-hidden="true" xmlns="http://www.w3.org/2000/svg" class="svg-icon inline-chevron-right-icon icon-inline chevron" viewBox="0 0 14 14"><path data-v-7f60a732="" d="m4.81347656 13.1269531c.22558594
0 .41015625-.0820312.56738282-.2324219l5.31835942-5.19531245c.1845703-.19140625.2802734-.38964844.2802734-.63574219
0-.23925781-.0888672-.45117187-.2802734-.62890625l-5.31835942-5.20214843c-.15722657-.15039063-.34179688-.23242188-.56738282-.23242188-.45800781 0-.81347656.35546875-.81347656.80664062
0 .21875.09570312.43066407.24609375.58789063l4.79199219 4.67578125-4.79199219
4.6621094c-.15722656.1640625-.24609375.3623047-.24609375.5878906
0
.4511719.35546875.8066406.81347656.8066406z"></path></svg></button> <svg data-v-7f60a732="" data-v-7334d1b4="" aria-hidden="true" xmlns="http://www.w3.org/2000/svg" class="svg-icon collection-icon icon-inline" viewBox="0 0 14 14"><title data-v-7f60a732="">Collection</title><g data-v-7f60a732="" transform="translate(2.116699, 4.455566)"><path data-v-7f60a732="" d="M-1.2412647-0.767793c0.4863523,0,0.8754342-0.3890819,0.8754342-0.8684863
c0-0.4863524-0.3890819-0.8754342-0.8754342-0.8754342S-2.116699-2.1226318-2.116699-1.6362793
C-2.116699-1.1568749-1.7276171-0.767793-1.2412647-0.767793z M1.829703-1.0804482h9.490819
c0.3126545,0,0.5627785-0.2431761,0.5627785-0.5558312c0-0.319603-0.250124-0.5627792-0.5627785-0.5627792H1.829703
c-0.319603,0-0.5627792,0.2431762-0.5627792,0.5627792C1.2669238-1.3236243,1.5101-1.0804482,1.829703-1.0804482z

M-1.2412647,3.4356809c0.4863523,0,0.8754342-0.3890817,0.8754342-0.8754342s-0.3890819-0.8754343-0.8754342-0.8754343
S-2.116699,2.0738943-2.116699,2.5602467S-1.7276171,3.4356809-1.2412647,3.4356809z M1.829703,3.1230259h9.490819
c0.3126545,0,0.5627785-0.2501242,0.5627785-0.5627792s-0.250124-0.5558312-0.5627785-0.5558312H1.829703
c-0.319603,0-0.5627792,0.243176-0.5627792,0.5558312S1.5101,3.1230259,1.829703,3.1230259z M-1.2412647,7.6391549
c0.4863523,0,0.8754342-0.3960299,0.8754342-0.8754344c0-0.4863524-0.3890819-0.8754339-0.8754342-0.8754339
S-2.116699,6.2773681-2.116699,6.7637205C-2.116699,7.243125-1.7276171,7.6391549-1.2412647,7.6391549z M1.829703,7.3195519
h9.490819c0.3126545,0,0.5627785-0.2431765,0.5627785-0.5558314c0-0.319603-0.250124-0.5627789-0.5627785-0.5627789H1.829703
c-0.319603,0-0.5627792,0.243176-0.5627792,0.5627789C1.2669238,7.0763755,1.5101,7.3195519,1.829703,7.3195519z"></path></g></svg> , containing 29 symbols 3 of 74 symbols inside <a data-v-354ee602="" href="/documentation/xcode/capabilities" class="leaf-link" id="-1926011523" tabindex="-1" aria-describedby="label--1926011523 <root> label-parent--1926011523 usage--1926011523"> Capabilities <!----> To navigate the symbols, press Up Arrow, Down Arrow, Left Arrow or Right Arrow <!----> <!----> <!----> 4 of 74 symbols inside <h3 data-v-354ee602="" id="-196255990" tabindex="-1" aria-describedby="label--196255990 <root> usage--196255990" class="leaf-link"> Code </h3><!----> To navigate the symbols, press Up Arrow, Down Arrow, Left Arrow or Right Arrow <!----> <svg data-v-7f60a732="" data-v-7334d1b4="" aria-hidden="true" xmlns="http://www.w3.org/2000/svg" class="svg-icon collection-icon icon-inline" viewBox="0 0 14 14"><title data-v-7f60a732="">Collection</title><g data-v-7f60a732="" transform="translate(2.116699, 4.455566)"><path data-v-7f60a732="" d="M-1.2412647-0.767793c0.4863523,0,0.8754342-0.3890819,0.8754342-0.8684863

c0-0.4863524-0.3890819-0.8754342-0.8754342-0.8754342S-2.116699-2.1226318-2.116699-1.6362793
C-2.116699-1.1568749-1.7276171-0.767793-1.2412647-0.767793z M1.829703-1.0804482h9.490819
c0.3126545,0,0.5627785-0.2431761,0.5627785-0.5558312c0-0.319603-0.250124-0.5627792-0.5627785-0.5627792H1.829703
c-0.319603,0-0.5627792,0.2431762-0.5627792,0.5627792C1.2669238-1.3236243,1.5101-1.0804482,1.829703-1.0804482z
M-1.2412647,3.4356809c0.4863523,0,0.8754342-0.3890817,0.8754342-0.8754342s-0.3890819-0.8754343-0.8754342-0.8754343
S-2.116699,2.0738943-2.116699,2.5602467S-1.7276171,3.4356809-1.2412647,3.4356809z M1.829703,3.1230259h9.490819
c0.3126545,0,0.5627785-0.2501242,0.5627785-0.5627792s-0.250124-0.5558312-0.5627785-0.5558312H1.829703
c-0.319603,0-0.5627792,0.243176-0.5627792,0.5558312S1.5101,3.1230259,1.829703,3.1230259z M-1.2412647,7.6391549
c0.4863523,0,0.8754342-0.3960299,0.8754342-0.8754344c0-0.4863524-0.3890819-0.8754339-0.8754342-0.8754339
S-2.116699,6.2773681-2.116699,6.7637205C-2.116699,7.243125-1.7276171,7.6391549-1.2412647,7.6391549z M1.829703,7.3195519
h9.490819c0.3126545,0,0.5627785-0.2431765,0.5627785-0.5558314c0-0.319603-0.250124-0.5627789-0.5627785-0.5627789H1.829703
c-0.319603,0-0.5627792,0.243176-0.5627792,0.5627789C1.2669238,7.0763755,1.5101,7.3195519,1.829703,7.3195519z"></path></g></svg> <!----> 5 of 74 symbols inside <a data-v-354ee602="" href="/documentation/apple-silicon/porting-your-macos-apps-to-apple-silicon" class="leaf-link" id="-79763505" tabindex="-1" aria-describedby="label--79763505 <root> usage--79763505"> Porting Your macOS Apps to Apple Silicon <!----> To navigate the symbols, press Up Arrow, Down Arrow, Left Arrow or Right Arrow <!----> <svg data-v-7f60a732="" data-v-7334d1b4="" aria-hidden="true" xmlns="http://www.w3.org/2000/svg" class="svg-icon article-icon icon-inline" viewBox="0 0 14 14"><g data-v-7f60a732="" transform="translate(3.616699, 1.608398)"><path data-v-7f60a732="" d="M0.0136063,12.3984375H6.948308c1.3516788,0,2.0242538-0.6856346,2.0242538-2.0438433V4.4254899
c0-0.842351-0.0979481-1.2080226-0.6203365-1.7434704L4.7542777-0.9812267
C4.2580094-1.490555,3.8466287-1.6015625,3.1152854-1.6015625H0.0136063c-1.3451493,0-2.0242538,0.6921641-2.0242538,2.0503731
v9.9057837C-2.0106475,11.7193327-1.3380729,12.3984375,0.0136063,12.3984375z M0.0593152,11.3471317

c-0.6725746,0-1.0186567-0.3591423-1.0186567-1.0121269V0.4684002c0-0.6464552,0.346082-1.0186567,1.0251865-1.0186567h2.9057837

v3.7938433c0,0.8227613,0.4113805,1.2276118,1.227612,1.2276118h3.7220149v5.8638062
c0,0.6529846-0.3460822,1.0121269-1.0251865,1.0121269H0.0593152z M4.3167777,3.4851911
c-0.2611938,0-0.3591416-0.1044776-0.3591416-0.3656716v-3.4673507l3.761194,3.8330224H4.3167777z M5.8839421,6.2734375H0.9277854
c-0.2350746,0-0.4113806,0.1763058-0.4113806,0.3983207c0,0.2285452,0.176306,0.404851,0.4113806,0.404851h4.9561567
c0.2285447,0,0.3983207-0.1763058,0.3983207-0.404851C6.2822628,6.4497433,6.1124868,6.2734375,5.8839421,6.2734375z
M5.8839421,8.5523558H0.9277854c-0.2350746,0-0.4113806,0.1828356-0.4113806,0.4113798

c0,0.2220154,0.176306,0.3917913,0.4113806,0.3917913h4.9561567c0.2285447,0,0.3983207-0.169776,0.3983207-0.3917913

C6.2822628,8.7351913,6.1124868,8.5523558,5.8839421,8.5523558z"></path></g></svg> <!----> 6 of 74 symbols inside <a data-v-354ee602="" href="/documentation/xcode/finding-and-refactoring-code" class="leaf-link" id="-1271830018" tabindex="-1" aria-describedby="label--1271830018 <root> usage--1271830018"> Finding and Refactoring Code <!----> To navigate the symbols, press Up Arrow, Down Arrow, Left Arrow or Right Arrow <!----> <svg data-v-7f60a732="" data-v-7334d1b4="" aria-hidden="true" xmlns="http://www.w3.org/2000/svg" class="svg-icon article-icon icon-inline" viewBox="0 0 14 14"><g data-v-7f60a732="" transform="translate(3.616699, 1.608398)"><path data-v-7f60a732="" d="M0.0136063,12.3984375H6.948308c1.3516788,0,2.0242538-0.6856346,2.0242538-2.0438433V4.4254899
c0-0.842351-0.0979481-1.2080226-0.6203365-1.7434704L4.7542777-0.9812267
C4.2580094-1.490555,3.8466287-1.6015625,3.1152854-1.6015625H0.0136063c-1.3451493,0-2.0242538,0.6921641-2.0242538,2.0503731
v9.9057837C-2.0106475,11.7193327-1.3380729,12.3984375,0.0136063,12.3984375z M0.0593152,11.3471317
c-0.6725746,0-1.0186567-0.3591423-1.0186567-1.0121269V0.4684002c0-0.6464552,0.346082-1.0186567,1.0251865-1.0186567h2.9057837

v3.7938433c0,0.8227613,0.4113805,1.2276118,1.227612,1.2276118h3.7220149v5.8638062
c0,0.6529846-0.3460822,1.0121269-1.0251865,1.0121269H0.0593152z
M4.3167777,3.4851911
c-0.2611938,0-0.3591416-0.1044776-0.3591416-0.3656716v-3.4673507l3.761194,3.8330224H4.3167777z
M5.8839421,6.2734375H0.9277854
c-0.2350746,0-0.4113806,0.1763058-0.4113806,0.3983207c0,0.2285452,0.176306,0.404851,0.4113806,0.404851h4.9561567
c0.2285447,0,0.3983207-0.1763058,0.3983207-0.404851C6.2822628,6.4497433,6.1124868,6.2734375,5.8839421,6.2734375z
M5.8839421,8.5523558H0.9277854c-0.2350746,0-0.4113806,0.1828356-0.4113806,0.4113798

c0,0.2220154,0.176306,0.3917913,0.4113806,0.3917913h4.9561567c0.2285447,0,0.3983207-0.169776,0.3983207-0.3917913

C6.2822628,8.7351913,6.1124868,8.5523558,5.8839421,8.5523558z"></path></g></svg> <!----> 7 of 74 symbols inside <a data-v-354ee602="" href="/documentation/xcode/fixing-issues-in-your-code-as-you-type" class="leaf-link" id="-1522429997" tabindex="-1" aria-describedby="label--1522429997 <root> usage--1522429997"> Fixing Issues in Your Code as You Type <!----> To navigate the symbols, press Up Arrow, Down Arrow, Left Arrow or Right Arrow <button data-v-354ee602="" tabindex="-1" aria-labelledby="-1122510790" aria-expanded="false" aria-describedby="label--1122510790 <root> label-parent--1122510790" class="tree-toggle"><svg data-v-7f60a732="" data-v-354ee602="" aria-hidden="true" xmlns="http://www.w3.org/2000/svg" class="svg-icon inline-chevron-right-icon icon-inline chevron" viewBox="0 0 14 14"><path data-v-7f60a732="" d="m4.81347656 13.1269531c.22558594 0 .41015625-.0820312.56738282-.2324219l5.31835942-5.19531245c.1845703-.19140625.2802734-.38964844.2802734-.63574219 0-.23925781-.0888672-.45117187-.2802734-.62890625l-5.31835942-5.20214843c-.15722657-.15039063-.34179688-.23242188-.56738282-.23242188-.45800781 0-.81347656.35546875-.81347656.80664062 0 .21875.09570312.43066407.24609375.58789063l4.79199219 4.67578125-4.79199219 4.6621094c-.15722656.1640625-.24609375.3623047-.24609375.5878906 0 .4511719.35546875.8066406.81347656.8066406z"></path></svg></button> <svg data-v-7f60a732="" data-v-7334d1b4="" aria-hidden="true" xmlns="http://www.w3.org/2000/svg" class="svg-icon collection-

icon icon-inline" viewBox="0 0 14 14"><title
data-v-7f60a732="">Collection</title><g data-v-7f60a732=""
transform="translate(2.116699, 4.455566)"><path data-v-7f60a732="" d="M-
1.2412647-0.767793c0.4863523,0,0.8754342-0.3890819,0.8754342-0.8684863
c0-0.4863524-0.3890819-0.8754342-0.8754342-0.8754342S-2.116699-
2.1226318-2.116699-1.6362793
C-2.116699-1.1568749-1.7276171-0.767793-1.2412647-0.767793z
M1.829703-1.0804482h9.490819
c0.3126545,0,0.5627785-0.2431761,0.5627785-0.5558312c0-0.319603-
0.250124-0.5627792-0.5627785-0.5627792H1.829703
c-0.319603,0-0.5627792,0.2431762-0.5627792,0.5627792C1.2669238-
1.3236243,1.5101-1.0804482,1.829703-1.0804482z
M-1.2412647,3.4356809c0.4863523,0,0.8754342-0.3890817,0.8754342-
0.8754342s-0.3890819-0.8754343-0.8754342-0.8754343
S-2.116699,2.0738943-2.116699,2.5602467S-1.7276171,3.4356809-
1.2412647,3.4356809z M1.829703,3.1230259h9.490819
c0.3126545,0,0.5627785-0.2501242,0.5627785-0.5627792s-0.250124-
0.5558312-0.5627785-0.5558312H1.829703
c-0.319603,0-0.5627792,0.243176-
0.5627792,0.5558312S1.5101,3.1230259,1.829703,3.1230259z M-
1.2412647,7.6391549
c0.4863523,0,0.8754342-0.3960299,0.8754342-0.8754344c0-0.4863524-
0.3890819-0.8754339-0.8754342-0.8754339
S-2.116699,6.2773681-2.116699,6.7637205C-2.116699,7.243125-
1.7276171,7.6391549-1.2412647,7.6391549z M1.829703,7.3195519
h9.490819c0.3126545,0,0.5627785-0.2431765,0.5627785-0.5558314c0-
0.319603-0.250124-0.5627789-0.5627785-0.5627789H1.829703
c-0.319603,0-0.5627792,0.243176-
0.5627792,0.5627789C1.2669238,7.0763755,1.5101,7.3195519,1.829703,7.319
5519z"></path></g></svg> <div data-v-354ee602="" class="title-
container"><span data-v-354ee602="" hidden="hidden" id="label-parent--
1122510790">, containing 19 symbols<span data-v-354ee602=""
id="label--1122510790" hidden="hidden"> 8 of 74 symbols inside <a
data-v-354ee602="" href="/documentation/xcode/build-system" class="leaf-
link" id="-1122510790" tabindex="-1" aria-describedby="label--1122510790
<root> label-parent--1122510790 usage--1122510790"><p data-v-53c78ce5=""
data-v-354ee602="" class="highlight">Build
System</p><!----> <div class="vue-recycle-
scroller__item-view" style="transform: translateY(256px);"><div data-v-
354ee602="" data-v-3769e00e="" id="container--1017033776"
class="navigator-card-item" style="--nesting-index: 0;"><div data-v-
354ee602="" class="head-wrapper"><span data-v-354ee602=""
hidden="hidden" id="usage--1017033776"> To navigate the symbols, press Up
Arrow, Down Arrow, Left Arrow or Right Arrow <div data-v-354ee602=""
class="depth-spacer"><button data-v-354ee602="" tabindex="-1" aria-
labelledby="-1017033776" aria-expanded="false" aria-describedby="label--
1017033776 <root> label-parent--1017033776" class="tree-toggle"><svg data-
v-7f60a732="" data-v-354ee602="" aria-hidden="true"
xmlns="http://www.w3.org/2000/svg" class="svg-icon inline-chevron-right-icon
icon-inline chevron" viewBox="0 0 14 14"><path data-v-7f60a732=""
d="m4.81347656 13.1269531c.22558594
0 .41015625-.0820312.56738282-.2324219l5.31835942-
5.19531245c.1845703-.19140625.2802734-.38964844.2802734-.63574219
0-.23925781-.0888672-.45117187-.2802734-.62890625l-5.31835942-

5.20214843c-.15722657-.15039063-.34179688-.23242188-.56738282-.23242188-.45800781 0-.81347656.35546875-.81347656.80664062
0 .21875.09570312.43066407.24609375.58789063l4.79199219 4.67578125-4.79199219
4.6621094c-.15722656.1640625-.24609375.3623047-.24609375.5878906
0
.4511719.35546875.8066406.81347656.8066406z"></path></svg></button>
<svg data-v-7f60a732="" data-v-7334d1b4="" aria-hidden="true" xmlns="http://www.w3.org/2000/svg" class="svg-icon collection-icon icon-inline" viewBox="0 0 14 14"><title
data-v-7f60a732="">Collection</title><g data-v-7f60a732="" transform="translate(2.116699, 4.455566)"><path data-v-7f60a732="" d="M-1.2412647-0.767793c0.4863523,0,0.8754342-0.3890819,0.8754342-0.8684863
c0-0.4863524-0.3890819-0.8754342-0.8754342-0.8754342S-2.116699-2.1226318-2.116699-1.6362793
C-2.116699-1.1568749-1.7276171-0.767793-1.2412647-0.767793z M1.829703-1.0804482h9.490819
c0.3126545,0,0.5627785-0.2431761,0.5627785-0.5558312c0-0.319603-0.250124-0.5627792-0.5627785-0.5627792H1.829703
c-0.319603,0-0.5627792,0.2431762-0.5627792,0.5627792C1.2669238-1.3236243,1.5101-1.0804482,1.829703-1.0804482z
M-1.2412647,3.4356809c0.4863523,0,0.8754342-0.3890817,0.8754342-0.8754342s-0.3890819-0.8754343-0.8754342-0.8754343
S-2.116699,2.0738943-2.116699,2.5602467S-1.7276171,3.4356809-1.2412647,3.4356809z M1.829703,3.1230259h9.490819
c0.3126545,0,0.5627785-0.2501242,0.5627785-0.5627792s-0.250124-0.5558312-0.5627785-0.5558312H1.829703
c-0.319603,0-0.5627792,0.243176-0.5627792,0.5558312S1.5101,3.1230259,1.829703,3.1230259z M-1.2412647,7.6391549
c0.4863523,0,0.8754342-0.3960299,0.8754342-0.8754344c0-0.4863524-0.3890819-0.8754339-0.8754342-0.8754339
S-2.116699,6.2773681-2.116699,6.7637205C-2.116699,7.243125-1.7276171,7.6391549-1.2412647,7.6391549z M1.829703,7.3195519
h9.490819c0.3126545,0,0.5627785-0.2431765,0.5627785-0.5558314c0-0.319603-0.250124-0.5627789-0.5627785-0.5627789H1.829703
c-0.319603,0-0.5627792,0.243176-0.5627792,0.5627789C1.2669238,7.0763755,1.5101,7.3195519,1.829703,7.3195519z"></path></g></svg> , containing 5 symbols 9 of 74 symbols inside <a data-v-354ee602="" href="/documentation/xcode/application-binary-interfaces" class="leaf-link" id="-1017033776" tabindex="-1" aria-describedby="label--1017033776 <root> label-parent--1017033776 usage--1017033776"> Application Binary Interfaces <!----> To navigate the symbols, press Up Arrow, Down Arrow, Left Arrow or Right Arrow <div data-v-354ee602=""

class="depth-spacer"><button data-v-354ee602="" tabindex="-1" aria-
labelledby="1737898381" aria-expanded="false" aria-describedby="label-
1737898381 <root> label-parent-1737898381" class="tree-toggle"><svg data-
v-7f60a732="" data-v-354ee602="" aria-hidden="true"
xmlns="http://www.w3.org/2000/svg" class="svg-icon inline-chevron-right-icon
icon-inline chevron" viewBox="0 0 14 14"><path data-v-7f60a732=""
d="m4.81347656 13.1269531c.22558594
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5.19531245c.1845703-.19140625.2802734-.38964844.2802734-.63574219
0-.23925781-.0888672-.45117187-.2802734-.62890625l-5.31835942-
5.20214843c-.15722657-.15039063-.34179688-.23242188-.56738282-.2324218
8-.45800781 0-.81347656.35546875-.81347656.80664062
0 .21875.09570312.43066407.24609375.58789063l4.79199219 4.67578125-
4.79199219
4.6621094c-.15722656.1640625-.24609375.3623047-.24609375.5878906
0
.4511719.35546875.8066406.81347656.8066406z"></path></svg></button>
<div data-v-7334d1b4="" data-v-354ee602="" class="NavigatorLeafIcon
navigator-icon"><svg data-v-7f60a732="" data-v-7334d1b4="" aria-
hidden="true" xmlns="http://www.w3.org/2000/svg" class="svg-icon collection-
icon icon-inline" viewBox="0 0 14 14"><title
data-v-7f60a732="">Collection</title><g data-v-7f60a732=""
transform="translate(2.116699, 4.455566)"><path data-v-7f60a732="" d="M-
1.2412647-0.767793c0.4863523,0,0.8754342-0.3890819,0.8754342-0.8684863
c0-0.4863524-0.3890819-0.8754342-0.8754342-0.8754342S-2.116699-
2.1226318-2.116699-1.6362793
C-2.116699-1.1568749-1.7276171-0.767793-1.2412647-0.767793z
M1.829703-1.0804482h9.490819
c0.3126545,0,0.5627785-0.2431761,0.5627785-0.5558312c0-0.319603-
0.250124-0.5627792-0.5627785-0.5627792H1.829703
c-0.319603,0-0.5627792,0.2431762-0.5627792,0.5627792C1.2669238-
1.3236243,1.5101-1.0804482,1.829703-1.0804482z
M-1.2412647,3.4356809c0.4863523,0,0.8754342-0.3890817,0.8754342-
0.8754342s-0.3890819-0.8754343-0.8754342-0.8754343
S-2.116699,2.0738943-2.116699,2.5602467S-1.7276171,3.4356809-
1.2412647,3.4356809z M1.829703,3.1230259h9.490819
c0.3126545,0,0.5627785-0.2501242,0.5627785-0.5627792s-0.250124-
0.5558312-0.5627785-0.5558312H1.829703
c-0.319603,0-0.5627792,0.243176-
0.5627792,0.5558312S1.5101,3.1230259,1.829703,3.1230259z M-
1.2412647,7.6391549
c0.4863523,0,0.8754342-0.3960299,0.8754342-0.8754344c0-0.4863524-
0.3890819-0.8754339-0.8754342-0.8754339
S-2.116699,6.2773681-2.116699,6.7637205C-2.116699,7.243125-
1.7276171,7.6391549-1.2412647,7.6391549z M1.829703,7.3195519
h9.490819c0.3126545,0,0.5627785-0.2431765,0.5627785-0.5558314c0-
0.319603-0.250124-0.5627789-0.5627785-0.5627789H1.829703
c-0.319603,0-0.5627792,0.243176-
0.5627792,0.5627789C1.2669238,7.0763755,1.5101,7.3195519,1.829703,7.319
5519z"></path></g></svg> <div data-v-354ee602="" class="title-
container"><span data-v-354ee602="" hidden="hidden" id="label-parent-
1737898381">, containing 9 symbols<span data-v-354ee602=""
id="label-1737898381" hidden="hidden"> 10 of 74 symbols inside <a
data-v-354ee602="" href="/documentation/xcode/source-control-management"

class="leaf-link" id="1737898381" tabindex="-1" aria-describedby="label-1737898381 <root> label-parent-1737898381 usage-1737898381"> Source Control Management <!----> To navigate the symbols, press Up Arrow, Down Arrow, Left Arrow or Right Arrow <!----> <svg data-v-7f60a732="" data-v-7334d1b4="" aria-hidden="true" xmlns="http://www.w3.org/2000/svg" class="svg-icon article-icon icon-inline" viewBox="0 0 14 14"><g data-v-7f60a732="" transform="translate(3.616699, 1.608398)"><path data-v-7f60a732="" d="M0.0136063,12.3984375H6.948308c1.3516788,0,2.0242538-0.6856346,2.0242538-2.0438433V4.4254899
c0-0.842351-0.0979481-1.2080226-0.6203365-1.7434704L4.7542777-0.9812267
C4.2580094-1.490555,3.8466287-1.6015625,3.1152854-1.6015625H0.0136063c-1.3451493,0-2.0242538,0.6921641-2.0242538,2.0503731
v9.9057837C-2.0106475,11.7193327-1.3380729,12.3984375,0.0136063,12.3984375z M0.0593152,11.3471317
c-0.6725746,0-1.0186567-0.3591423-1.0186567-1.0121269V0.4684002c0-0.6464552,0.346082-1.0186567,1.0251865-1.0186567h2.9057837

v3.7938433c0,0.8227613,0.4113805,1.2276118,1.227612,1.2276118h3.7220149v5.8638062
c0,0.6529846-0.3460822,1.0121269-1.0251865,1.0121269H0.0593152z M4.3167777,3.4851911
c-0.2611938,0-0.3591416-0.1044776-0.3591416-0.3656716v-3.4673507l3.761194,3.8330224H4.3167777z M5.8839421,6.2734375H0.9277854
c-0.2350746,0-0.4113806,0.1763058-0.4113806,0.3983207c0,0.2285452,0.176306,0.404851,0.4113806,0.404851h4.9561567
c0.2285447,0,0.3983207-0.1763058,0.3983207-0.404851C6.2822628,6.4497433,6.1124868,6.2734375,5.8839421,6.2734375z
M5.8839421,8.5523558H0.9277854c-0.2350746,0-0.4113806,0.1828356-0.4113806,0.4113798

c0,0.2220154,0.176306,0.3917913,0.4113806,0.3917913h4.9561567c0.2285447,0,0.3983207-0.169776,0.3983207-0.3917913

C6.2822628,8.7351913,6.1124868,8.5523558,5.8839421,8.5523558z"></path></g></svg> <!----> 11 of 74 symbols inside <a data-v-354ee602="" href="/documentation/xcode/running-code-on-a-specific-version" class="leaf-link" id="303541445" tabindex="-1" aria-describedby="label-303541445 <root> usage-303541445"> Running code on a specific platform or OS version <!----> <div class="vue-recycle-

scroller__item-view" style="transform: translateY(352px);"> To navigate the symbols, press Up Arrow, Down Arrow, Left Arrow or Right Arrow <!----> <!----> <!----> 12 of 74 symbols inside <h3 data-v-354ee602="" id="-1788968407" tabindex="-1" aria-describedby="label--1788968407 <root> usage--1788968407" class="leaf-link"> Interface </h3><!----> To navigate the symbols, press Up Arrow, Down Arrow, Left Arrow or Right Arrow <button data-v-354ee602="" tabindex="-1" aria-labelledby="-746088852" aria-expanded="false" aria-describedby="label--746088852 <root> label-parent--746088852" class="tree-toggle"><svg data-v-7f60a732="" data-v-354ee602="" aria-hidden="true" xmlns="http://www.w3.org/2000/svg" class="svg-icon inline-chevron-right-icon icon-inline chevron" viewBox="0 0 14 14"><path data-v-7f60a732="" d="m4.81347656 13.1269531c.22558594
0 .41015625-.0820312.56738282-.2324219l5.31835942-5.19531245c.1845703-.19140625.2802734-.38964844.2802734-.63574219
0-.23925781-.0888672-.45117187-.2802734-.62890625l-5.31835942-5.20214843c-.15722657-.15039063-.34179688-.23242188-.56738282-.23242188-.45800781 0-.81347656.35546875-.81347656.80664062
0 .21875.09570312.43066407.24609375.58789063l4.79199219 4.67578125-4.79199219
4.6621094c-.15722656.1640625-.24609375.3623047-.24609375.5878906
0
.4511719.35546875.8066406.81347656.8066406z"></path></svg></button> <svg data-v-7f60a732="" data-v-7334d1b4="" aria-hidden="true" xmlns="http://www.w3.org/2000/svg" class="svg-icon collection-icon icon-inline" viewBox="0 0 14 14"><title data-v-7f60a732="">Collection</title><g data-v-7f60a732="" transform="translate(2.116699, 4.455566)"><path data-v-7f60a732="" d="M-1.2412647-0.767793c0.4863523,0,0.8754342-0.3890819,0.8754342-0.8684863
c0-0.4863524-0.3890819-0.8754342-0.8754342-0.8754342S-2.116699-2.1226318-2.116699-1.6362793
C-2.116699-1.1568749-1.7276171-0.767793-1.2412647-0.767793z M1.829703-1.0804482h9.490819
c0.3126545,0,0.5627785-0.2431761,0.5627785-0.5558312c0-0.319603-0.250124-0.5627792-0.5627785-0.5627792H1.829703
c-0.319603,0-0.5627792,0.2431762-0.5627792,0.5627792C1.2669238-1.3236243,1.5101-1.0804482,1.829703-1.0804482z
M-1.2412647,3.4356809c0.4863523,0,0.8754342-0.3890817,0.8754342-0.8754342s-0.3890819-0.8754343-0.8754342-0.8754343
S-2.116699,2.0738943-2.116699,2.5602467S-1.7276171,3.4356809-1.2412647,3.4356809z M1.829703,3.1230259h9.490819

c0.3126545,0,0.5627785-0.2501242,0.5627785-0.5627792s-0.250124-0.5558312-0.5627785-0.5558312H1.829703
c-0.319603,0-0.5627792,0.243176-0.5627792,0.5558312S1.5101,3.1230259,1.829703,3.1230259z M-1.2412647,7.6391549
c0.4863523,0,0.8754342-0.3960299,0.8754342-0.8754344c0-0.4863524-0.3890819-0.8754339-0.8754342-0.8754339
S-2.116699,6.2773681-2.116699,6.7637205C-2.116699,7.243125-1.7276171,7.6391549-1.2412647,7.6391549z M1.829703,7.3195519
h9.490819c0.3126545,0,0.5627785-0.2431765,0.5627785-0.5558314c0-0.319603-0.250124-0.5627789-0.5627785-0.5627789H1.829703
c-0.319603,0-0.5627792,0.243176-0.5627792,0.5627789C1.2669238,7.0763755,1.5101,7.3195519,1.829703,7.3195519z"></path></g></svg> , containing 17 symbols 13 of 74 symbols inside <a data-v-354ee602="" href="/documentation/xcode/asset-management" class="leaf-link" id="-746088852" tabindex="-1" aria-describedby="label--746088852 <root> label-parent--746088852 usage--746088852"> Asset Management <!----> To navigate the symbols, press Up Arrow, Down Arrow, Left Arrow or Right Arrow <!----> <svg data-v-7f60a732="" data-v-7334d1b4="" aria-hidden="true" xmlns="http://www.w3.org/2000/svg" class="svg-icon article-icon icon-inline" viewBox="0 0 14 14"><g data-v-7f60a732="" transform="translate(3.616699, 1.608398)"><path data-v-7f60a732="" d="M0.0136063,12.3984375H6.948308c1.3516788,0,2.0242538-0.6856346,2.0242538-2.0438433V4.4254899
c0-0.842351-0.0979481-1.2080226-0.6203365-1.7434704L4.7542777-0.9812267
C4.2580094-1.490555,3.8466287-1.6015625,3.1152854-1.6015625H0.0136063c-1.3451493,0-2.0242538,0.6921641-2.0242538,2.0503731
v9.9057837C-2.0106475,11.7193327-1.3380729,12.3984375,0.0136063,12.3984375z M0.0593152,11.3471317
c-0.6725746,0-1.0186567-0.3591423-1.0186567-1.0121269V0.4684002c0-0.6464552,0.346082-1.0186567,1.0251865-1.0186567h2.9057837

v3.7938433c0,0.8227613,0.4113805,1.2276118,1.227612,1.2276118h3.7220149v5.8638062
c0,0.6529846-0.3460822,1.0121269-1.0251865,1.0121269H0.0593152z M4.3167777,3.4851911
c-0.2611938,0-0.3591416-0.1044776-0.3591416-0.3656716v-3.4673507l3.761194,3.8330224H4.3167777z M5.8839421,6.2734375H0.9277854

c-0.2350746,0-0.4113806,0.1763058-
0.4113806,0.3983207c0,0.2285452,0.176306,0.404851,0.4113806,0.404851h4.
9561567
c0.2285447,0,0.3983207-0.1763058,0.3983207-
0.404851C6.2822628,6.4497433,6.1124868,6.2734375,5.8839421,6.2734375z
M5.8839421,8.5523558H0.9277854c-0.2350746,0-0.4113806,0.1828356-
0.4113806,0.4113798

c0,0.2220154,0.176306,0.3917913,0.4113806,0.3917913h4.9561567c0.228544
7,0,0.3983207-0.169776,0.3983207-0.3917913

C6.2822628,8.7351913,6.1124868,8.5523558,5.8839421,8.5523558z"></path>
</g></svg> <!----
> 14 of 74
symbols inside <a data-v-354ee602=""
href="/documentation/xcode/creating-your-app-s-interface-with-swiftui"
class="leaf-link" id="-114145427" tabindex="-1" aria-describedby="label--
114145427 <root> usage--114145427"><p data-v-53c78ce5="" data-v-
354ee602="" class="highlight">Creating Your App’s Interface with
SwiftUI</p><!----> <div class="vue-recycle-
scroller__item-view" style="transform: translateY(448px);"><div data-v-
354ee602="" data-v-3769e00e="" id="container--1788968404"
class="navigator-card-item" style="--nesting-index: 0;"><div data-v-
354ee602="" class="head-wrapper is-group"><span data-v-354ee602=""
hidden="hidden" id="usage--1788968404"> To navigate the symbols, press Up
Arrow, Down Arrow, Left Arrow or Right Arrow <div data-v-354ee602=""
class="depth-spacer"><!----> <!----><div data-v-354ee602=""
class="title-container"><!----><span data-v-354ee602="" id="label--
1788968404" hidden="hidden"> 15 of 74 symbols inside <h3 data-v-
354ee602="" id="-1788968404" tabindex="-1" aria-describedby="label--
1788968404 <root> usage--1788968404" class="leaf-link"><p data-v-
53c78ce5="" data-v-354ee602=""
class="highlight">Localization</p></h3><!----> </
div><div class="vue-recycle-scroller__item-view" style="transform:
translateY(480px);"><div data-v-354ee602="" data-v-3769e00e=""
id="container--1865258698" class="navigator-card-item" style="--nesting-index:
0;"> <span data-v-
354ee602="" hidden="hidden" id="usage--1865258698"> To navigate the
symbols, press Up Arrow, Down Arrow, Left Arrow or Right Arrow <div
data-v-354ee602="" class="depth-spacer"><button data-v-354ee602=""
tabindex="-1" aria-labelledby="-1865258698" aria-expanded="false" aria-
describedby="label--1865258698 <root> label-parent--1865258698"
class="tree-toggle"><svg data-v-7f60a732="" data-v-354ee602="" aria-
hidden="true" xmlns="http://www.w3.org/2000/svg" class="svg-icon inline-
chevron-right-icon icon-inline chevron" viewBox="0 0 14 14"><path data-v-
7f60a732="" d="m4.81347656 13.1269531c.22558594
0 .41015625-.0820312.56738282-.2324219l5.31835942-
5.19531245c.1845703-.19140625.2802734-.38964844.2802734-.63574219
0-.23925781-.0888672-.45117187-.2802734-.62890625l-5.31835942-
5.20214843c-.15722657-.15039063-.34179688-.23242188-.56738282-.2324218
8-.45800781 0-.81347656.35546875-.81347656.80664062
0 .21875.09570312.43066407.24609375.58789063l4.79199219 4.67578125-
4.79199219
4.6621094c-.15722656.1640625-.24609375.3623047-.24609375.5878906

0
.4511719.35546875.8066406.81347656.8066406z"></path></svg></button>
<div data-v-7334d1b4="" data-v-354ee602="" class="NavigatorLeafIcon
navigator-icon"><svg data-v-7f60a732="" data-v-7334d1b4="" aria-
hidden="true" xmlns="http://www.w3.org/2000/svg" class="svg-icon collection-
icon icon-inline" viewBox="0 0 14 14"><title
data-v-7f60a732="">Collection</title><g data-v-7f60a732=""
transform="translate(2.116699, 4.455566)"><path data-v-7f60a732="" d="M-
1.2412647-0.767793c0.4863523,0,0.8754342-0.3890819,0.8754342-0.8684863
c0-0.4863524-0.3890819-0.8754342-0.8754342-0.8754342S-2.116699-
2.1226318-2.116699-1.6362793
C-2.116699-1.1568749-1.7276171-0.767793-1.2412647-0.767793z
M1.829703-1.0804482h9.490819
c0.3126545,0,0.5627785-0.2431761,0.5627785-0.5558312c0-0.319603-
0.250124-0.5627792-0.5627785-0.5627792H1.829703
c-0.319603,0-0.5627792,0.2431762-0.5627792,0.5627792C1.2669238-
1.3236243,1.5101-1.0804482,1.829703-1.0804482z
M-1.2412647,3.4356809c0.4863523,0,0.8754342-0.3890817,0.8754342-
0.8754342s-0.3890819-0.8754343-0.8754342-0.8754343
S-2.116699,2.0738943-2.116699,2.5602467S-1.7276171,3.4356809-
1.2412647,3.4356809z M1.829703,3.1230259h9.490819
c0.3126545,0,0.5627785-0.2501242,0.5627785-0.5627792s-0.250124-
0.5558312-0.5627785-0.5558312H1.829703
c-0.319603,0-0.5627792,0.243176-
0.5627792,0.5558312S1.5101,3.1230259,1.829703,3.1230259z M-
1.2412647,7.6391549
c0.4863523,0,0.8754342-0.3960299,0.8754342-0.8754344c0-0.4863524-
0.3890819-0.8754339-0.8754342-0.8754339
S-2.116699,6.2773681-2.116699,6.7637205C-2.116699,7.243125-
1.7276171,7.6391549-1.2412647,7.6391549z M1.829703,7.3195519
h9.490819c0.3126545,0,0.5627785-0.2431765,0.5627785-0.5558314c0-
0.319603-0.250124-0.5627789-0.5627785-0.5627789H1.829703
c-0.319603,0-0.5627792,0.243176-
0.5627792,0.5627789C1.2669238,7.0763755,1.5101,7.3195519,1.829703,7.319
5519z"></path></g></svg> <div data-v-354ee602="" class="title-
container"><span data-v-354ee602="" hidden="hidden" id="label-parent--
1865258698">, containing 20 symbols<span data-v-354ee602=""
id="label--1865258698" hidden="hidden"> 16 of 74 symbols inside <a
data-v-354ee602="" href="/documentation/xcode/localization" class="leaf-link"
id="-1865258698" tabindex="-1" aria-describedby="label--1865258698 <root>
label-parent--1865258698 usage--1865258698"><p data-v-53c78ce5="" data-v-
354ee602=""
class="highlight">Localization</p><!----> <div
class="vue-recycle-scroller__item-view" style="transform:
translateY(512px);"><div data-v-354ee602="" data-v-3769e00e=""
id="container-314486128" class="navigator-card-item" style="--nesting-index:
0;"> <span data-v-
354ee602="" hidden="hidden" id="usage-314486128"> To navigate the
symbols, press Up Arrow, Down Arrow, Left Arrow or Right Arrow <div
data-v-354ee602="" class="depth-spacer"><!----> <div data-v-
7334d1b4="" data-v-354ee602="" class="NavigatorLeafIcon navigator-
icon"><svg data-v-7f60a732="" data-v-7334d1b4="" aria-hidden="true"
xmlns="http://www.w3.org/2000/svg" class="svg-icon curly-brackets-icon icon-
inline" viewBox="0 0 14 14"><g data-v-7f60a732="" transform="translate(-

2.000000, -1.000000)"><g data-v-7f60a732="" transform="translate(2.616699, 1.948730)"><path data-v-7f60a732="" d="M0.0714366,6.0411005c0,0.3932204,0.2237288,0.6711864,0.6915254,0.7457628

C1.60364,6.9156766,1.9358432,7.3427954,1.9358432,8.4343204v1.9050856c0,1.8440676,0.840678,2.7118635,2.6711862,2.7118635
c0.1084747,0,0.2237291-0.0203381,0.3050852-0.0474567c0.2101693-0.0881357,0.3254237-0.2576275,0.3254237-0.4813566
c0-0.2644062-0.1152544-0.3999996-0.3525424-0.4610167c-0.0677967-0.0135593-0.1355934-0.0271187-0.2169495-0.0338984
c-1.1389828-0.081356-1.552542-0.5694914-1.552542-1.8237286V7.9529648c0-1.1457624-0.60339-1.7830505-1.6610171-1.8847456
c-0.020339,0-0.020339-0.0271187,0-0.0271187c1.0576271-0.1016951,1.6610171-0.7389832,1.6610171-1.8847456V1.8987277
c0-1.261017,0.4135592-1.7355932,1.552542-1.8169491c0.1084747-0.0067797,0.2033901-0.020339,0.2711868-0.0474576
c0.19661-0.0677966,0.298305-0.2169491,0.298305-0.4542373s-0.1220341-0.4-0.3525424-0.4813559
C4.7833009-0.9351707,4.6748261-0.94873,4.5392332-0.94873c-1.7694914,0-2.6033897,0.8813559-2.6033897,2.7118645v1.9118643
c0,1.0779662-0.3322033,1.5118647-1.1728812,1.6406779C0.2951654,5.3902531,0.0714366,5.6546597,0.0714366,6.0411005z
M12.6951647,6.0411005c0-0.3864408-0.2305079-0.6508474-0.6983051-0.7254238
c-0.8338976-0.1288133-1.1728811-0.5627117-1.1728811-1.6406779V1.7631344c0-1.8305085-0.8338985-2.7118645-2.6033897-2.7118645
c-0.1355934,0-0.2372875,0.0135593-0.3389826,0.0474576C7.6375384-0.8199164,7.522284-0.6572046,7.522284-0.4199165

s0.1152544,0.379661,0.3050847,0.4542373c0.0677967,0.0271186,0.1559324,0.040678,0.2644062,0.0474576

C9.223979,0.1360157,9.6510973,0.6377106,9.6510973,1.8987275v2.2576275c0,1.1525421,0.6033897,1.8847456,1.6542368,1.8847456
c0.020339,0,0.020339,0.0271187,0,0.0271187c-1.0508471,0-1.6542368,0.7322035-1.6542368,1.8847456v2.2508478
c0,1.2542372-0.4203396,1.7423725-1.5593224,1.8237286c-0.0813551,0.0067797-0.1423721,0.020339-0.2101688,0.0338984

C7.6443181,12.1088972,7.522284,12.25805,7.522284,12.5224562c0,0.2372885,0.1288137,0.4135599,0.3322034,0.4813566

c0.081356,0.0271187,0.1898308,0.0474567,0.2983046,0.0474567c1.8305082,0,2.6711864-0.8677959,2.6711864-2.7118635V8.4343204
c0-1.0915251,0.3389835-1.5186439,1.1728811-1.6474571C12.4646568,6.7122869,12.6951647,6.4343209,12.6951647,6.0411005z"></path></g></g></svg> <!----> 17 of 74 symbols inside <a data-v-354ee602="" href="/documentation/xcode/autosizing_views_for_localization_in_ios" class="leaf-link" id="314486128" tabindex="-1" aria-describedby="label-

314486128 <root> usage-314486128"> Autosizing Views for Localization in iOS <!----> To navigate the symbols, press Up Arrow, Down Arrow, Left Arrow or Right Arrow <!----> <svg data-v-7f60a732="" data-v-7334d1b4="" aria-hidden="true" xmlns="http://www.w3.org/2000/svg" class="svg-icon curly-brackets-icon icon-inline" viewBox="0 0 14 14"><g data-v-7f60a732="" transform="translate(-2.000000, -1.000000)"><g data-v-7f60a732="" transform="translate(2.616699, 1.948730)"><path data-v-7f60a732="" d="M0.0714366,6.0411005c0,0.3932204,0.2237288,0.6711864,0.6915254,0.7457628

C1.60364,6.9156766,1.9358432,7.3427954,1.9358432,8.4343204v1.9050856c0,1.8440676,0.840678,2.7118635,2.6711862,2.7118635
c0.1084747,0,0.2237291-0.0203381,0.3050852-0.0474567c0.2101693-0.0881357,0.3254237-0.2576275,0.3254237-0.4813566
c0-0.2644062-0.1152544-0.3999996-0.3525424-0.4610167c-0.0677967-0.0135593-0.1355934-0.0271187-0.2169495-0.0338984
c-1.1389828-0.081356-1.552542-0.5694914-1.552542-1.8237286V7.9529648c0-1.1457624-0.60339-1.7830505-1.6610171-1.8847456
c-0.020339,0-0.020339-0.0271187,0-0.0271187c1.0576271-0.1016951,1.6610171-0.7389832,1.6610171-1.8847456V1.8987277
c0-1.261017,0.4135592-1.7355932,1.552542-1.8169491c0.1084747-0.0067797,0.2033901-0.020339,0.2711868-0.0474576
c0.19661-0.0677966,0.298305-0.2169491,0.298305-0.4542373s-0.1220341-0.4-0.3525424-0.4813559
C4.7833009-0.9351707,4.6748261-0.94873,4.5392332-0.94873c-1.7694914,0-2.6033897,0.8813559-2.6033897,2.7118645v1.9118643
c0,1.0779662-0.3322033,1.5118647-1.1728812,1.6406779C0.2951654,5.3902531,0.0714366,5.6546597,0.0714366,6.0411005z
M12.6951647,6.0411005c0-0.3864408-0.2305079-0.6508474-0.6983051-0.7254238
c-0.8338976-0.1288133-1.1728811-0.5627117-1.1728811-1.6406779V1.7631344c0-1.8305085-0.8338985-2.7118645-2.6033897-2.7118645
c-0.1355934,0-0.2372875,0.0135593-0.3389826,0.0474576C7.6375384-0.8199164,7.522284-0.6572046,7.522284-0.4199165

s0.1152544,0.379661,0.3050847,0.4542373c0.0677967,0.0271186,0.1559324,0.040678,0.2644062,0.0474576

C9.223979,0.1360157,9.6510973,0.6377106,9.6510973,1.8987275v2.2576275c0,1.1525421,0.6033897,1.8847456,1.6542368,1.8847456
c0.020339,0,0.020339,0.0271187,0,0.0271187c-1.0508471,0-1.6542368,0.7322035-1.6542368,1.8847456v2.2508478

c0,1.2542372-0.4203396,1.7423725-1.5593224,1.8237286c-0.0813551,0.0067797-0.1423721,0.020339-0.2101688,0.0338984

C7.6443181,12.1088972,7.522284,12.25805,7.522284,12.5224562c0,0.2372885,0.1288137,0.4135599,0.3322034,0.4813566

c0.081356,0.0271187,0.1898308,0.0474567,0.2983046,0.0474567c1.8305082,0,2.6711864-0.8677959,2.6711864-2.7118635V8.4343204
c0-1.0915251,0.3389835-1.5186439,1.1728811-1.6474571C12.4646568,6.7122869,12.6951647,6.4343209,12.6951647,6.0411005z"></path></g></g></svg> <!----> 18 of 74 symbols inside <a data-v-354ee602="" href="/documentation/xcode/localization-friendly_layouts_in_macos" class="leaf-link" id="804025250" tabindex="-1" aria-describedby="label-804025250 <root> usage-804025250"> Localization-Friendly Layouts in macOS <!----> To navigate the symbols, press Up Arrow, Down Arrow, Left Arrow or Right Arrow <!----> <!----> <!----> 19 of 74 symbols inside <h3 data-v-354ee602="" id="-1788968400" tabindex="-1" aria-describedby="label--1788968400 <root> usage--1788968400" class="leaf-link"> Project Configuration </h3><!----> To navigate the symbols, press Up Arrow, Down Arrow, Left Arrow or Right Arrow <!----> <svg data-v-7f60a732="" data-v-7334d1b4="" aria-hidden="true" xmlns="http://www.w3.org/2000/svg" class="svg-icon article-icon icon-inline" viewBox="0 0 14 14"><g data-v-7f60a732="" transform="translate(3.616699, 1.608398)"><path data-v-7f60a732="" d="M0.0136063,12.3984375H6.948308c1.3516788,0,2.0242538-0.6856346,2.0242538-2.0438433V4.4254899
c0-0.842351-0.0979481-1.2080226-0.6203365-1.7434704L4.7542777-0.9812267
C4.2580094-1.490555,3.8466287-1.6015625,3.1152854-1.6015625H0.0136063c-1.3451493,0-2.0242538,0.6921641-2.0242538,2.0503731
v9.9057837C-2.0106475,11.7193327-1.3380729,12.3984375,0.0136063,12.3984375z M0.0593152,11.3471317
c-0.6725746,0-1.0186567-0.3591423-1.0186567-1.0121269V0.4684002c0-0.6464552,0.346082-1.0186567,1.0251865-1.0186567h2.9057837

v3.7938433c0,0.8227613,0.4113805,1.2276118,1.227612,1.2276118h3.7220149v5.8638062
c0,0.6529846-0.3460822,1.0121269-1.0251865,1.0121269H0.0593152z
M4.3167777,3.4851911
c-0.2611938,0-0.3591416-0.1044776-0.3591416-0.3656716v-3.4673507l3.761194,3.8330224H4.3167777z
M5.8839421,6.2734375H0.9277854
c-0.2350746,0-0.4113806,0.1763058-0.4113806,0.3983207c0,0.2285452,0.176306,0.404851,0.4113806,0.404851h4.9561567
c0.2285447,0,0.3983207-0.1763058,0.3983207-0.404851C6.2822628,6.4497433,6.1124868,6.2734375,5.8839421,6.2734375z
M5.8839421,8.5523558H0.9277854c-0.2350746,0-0.4113806,0.1828356-0.4113806,0.4113798

c0,0.2220154,0.176306,0.3917913,0.4113806,0.3917913h4.9561567c0.2285447,0,0.3983207-0.169776,0.3983207-0.3917913

C6.2822628,8.7351913,6.1124868,8.5523558,5.8839421,8.5523558z"></path></g></svg> <!----> 20 of 74 symbols inside <a data-v-354ee602="" href="/documentation/apple-silicon/building-a-universal-macos-binary" class="leaf-link" id="-1233796352" tabindex="-1" aria-describedby="label--1233796352 <root> usage--1233796352"> Building a Universal macOS Binary <!----> To navigate the symbols, press Up Arrow, Down Arrow, Left Arrow or Right Arrow <!----> <svg data-v-7f60a732="" data-v-7334d1b4="" aria-hidden="true" xmlns="http://www.w3.org/2000/svg" class="svg-icon article-icon icon-inline" viewBox="0 0 14 14"><g data-v-7f60a732="" transform="translate(3.616699, 1.608398)"><path data-v-7f60a732="" d="M0.0136063,12.3984375H6.948308c1.3516788,0,2.0242538-0.6856346,2.0242538-2.0438433V4.4254899
c0-0.842351-0.0979481-1.2080226-0.6203365-1.7434704L4.7542777-0.9812267
C4.2580094-1.490555,3.8466287-1.6015625,3.1152854-1.6015625H0.0136063c-1.3451493,0-2.0242538,0.6921641-2.0242538,2.0503731
v9.9057837C-2.0106475,11.7193327-1.3380729,12.3984375,0.0136063,12.3984375z M0.0593152,11.3471317
c-0.6725746,0-1.0186567-0.3591423-1.0186567-1.0121269V0.4684002c0-0.6464552,0.346082-1.0186567,1.0251865-1.0186567h2.9057837

v3.7938433c0,0.8227613,0.4113805,1.2276118,1.227612,1.2276118h3.7220149v5.8638062

c0,0.6529846-0.3460822,1.0121269-1.0251865,1.0121269H0.0593152z
M4.3167777,3.4851911
c-0.2611938,0-0.3591416-0.1044776-0.3591416-0.3656716v-
3.4673507l3.761194,3.8330224H4.3167777z
M5.8839421,6.2734375H0.9277854
c-0.2350746,0-0.4113806,0.1763058-
0.4113806,0.3983207c0,0.2285452,0.176306,0.404851,0.4113806,0.404851h4.
9561567
c0.2285447,0,0.3983207-0.1763058,0.3983207-
0.404851C6.2822628,6.4497433,6.1124868,6.2734375,5.8839421,6.2734375z
M5.8839421,8.5523558H0.9277854c-0.2350746,0-0.4113806,0.1828356-
0.4113806,0.4113798

c0,0.2220154,0.176306,0.3917913,0.4113806,0.3917913h4.9561567c0.228544
7,0,0.3983207-0.169776,0.3983207-0.3917913

C6.2822628,8.7351913,6.1124868,8.5523558,5.8839421,8.5523558z"></path>
</g></svg> <!----
> 21 of
74 symbols inside <a data-v-354ee602=""
href="/documentation/xcode/adding-package-dependencies-to-your-app"
class="leaf-link" id="1664505703" tabindex="-1" aria-describedby="label-
1664505703 <root> usage-1664505703"><p data-v-53c78ce5="" data-v-
354ee602="" class="highlight">Adding Package Dependencies to Your
App</p><!----> <div class="vue-recycle-
scroller__item-view" style="transform: translateY(672px);"><div data-v-
354ee602="" data-v-3769e00e="" id="container-389733698" class="navigator-
card-item" style="--nesting-index: 0;"><div data-v-354ee602="" class="head-
wrapper"><span data-v-354ee602="" hidden="hidden" id="usage-
389733698"> To navigate the symbols, press Up Arrow, Down Arrow, Left Arrow
or Right Arrow <!----
> <div data-v-7334d1b4="" data-v-354ee602=""
class="NavigatorLeafIcon navigator-icon"><svg data-v-7f60a732="" data-v-
7334d1b4="" aria-hidden="true" xmlns="http://www.w3.org/2000/svg"
class="svg-icon article-icon icon-inline" viewBox="0 0 14 14"><g data-v-
7f60a732="" transform="translate(3.616699, 1.608398)"><path data-v-
7f60a732="" d="M0.0136063,12.3984375H6.948308c1.3516788,0,2.0242538-
0.6856346,2.0242538-2.0438433V4.4254899
c0-0.842351-0.0979481-1.2080226-0.6203365-1.7434704L4.7542777-
0.9812267
C4.2580094-1.490555,3.8466287-1.6015625,3.1152854-
1.6015625H0.0136063c-1.3451493,0-2.0242538,0.6921641-
2.0242538,2.0503731
v9.9057837C-2.0106475,11.7193327-
1.3380729,12.3984375,0.0136063,12.3984375z M0.0593152,11.3471317
c-0.6725746,0-1.0186567-0.3591423-1.0186567-1.0121269V0.4684002c0-
0.6464552,0.346082-1.0186567,1.0251865-1.0186567h2.9057837

v3.7938433c0,0.8227613,0.4113805,1.2276118,1.227612,1.2276118h3.722014
9v5.8638062
c0,0.6529846-0.3460822,1.0121269-1.0251865,1.0121269H0.0593152z
M4.3167777,3.4851911

c-0.2611938,0-0.3591416-0.1044776-0.3591416-0.3656716v-3.4673507l3.761194,3.8330224H4.3167777z M5.8839421,6.2734375H0.9277854
c-0.2350746,0-0.4113806,0.1763058-0.4113806,0.3983207c0,0.2285452,0.176306,0.404851,0.4113806,0.404851h4.9561567
c0.2285447,0,0.3983207-0.1763058,0.3983207-0.404851C6.2822628,6.4497433,6.1124868,6.2734375,5.8839421,6.2734375z
M5.8839421,8.5523558H0.9277854c-0.2350746,0-0.4113806,0.1828356-0.4113806,0.4113798

c0,0.2220154,0.176306,0.3917913,0.4113806,0.3917913h4.9561567c0.2285447,0,0.3983207-0.169776,0.3983207-0.3917913

C6.2822628,8.7351913,6.1124868,8.5523558,5.8839421,8.5523558z"></path></g></svg> <!----> 22 of 74 symbols inside <a data-v-354ee602="" href="/documentation/uikit/mac_catalyst/creating_a_mac_version_of_your_ipad_app" class="leaf-link" id="389733698" tabindex="-1" aria-describedby="label-389733698 <root> usage-389733698"> Creating a Mac Version of Your iPad App <!----> To navigate the symbols, press Up Arrow, Down Arrow, Left Arrow or Right Arrow <!----> <svg data-v-7f60a732="" data-v-7334d1b4="" aria-hidden="true" xmlns="http://www.w3.org/2000/svg" class="svg-icon article-icon icon-inline" viewBox="0 0 14 14"><g data-v-7f60a732="" transform="translate(3.616699, 1.608398)"><path data-v-7f60a732="" d="M0.0136063,12.3984375H6.948308c1.3516788,0,2.0242538-0.6856346,2.0242538-2.0438433V4.4254899
c0-0.842351-0.0979481-1.2080226-0.6203365-1.7434704L4.7542777-0.9812267
C4.2580094-1.490555,3.8466287-1.6015625,3.1152854-1.6015625H0.0136063c-1.3451493,0-2.0242538,0.6921641-2.0242538,2.0503731
v9.9057837C-2.0106475,11.7193327-1.3380729,12.3984375,0.0136063,12.3984375z M0.0593152,11.3471317
c-0.6725746,0-1.0186567-0.3591423-1.0186567-1.0121269V0.4684002c0-0.6464552,0.346082-1.0186567,1.0251865-1.0186567h2.9057837

v3.7938433c0,0.8227613,0.4113805,1.2276118,1.227612,1.2276118h3.7220149v5.8638062
c0,0.6529846-0.3460822,1.0121269-1.0251865,1.0121269H0.0593152z M4.3167777,3.4851911
c-0.2611938,0-0.3591416-0.1044776-0.3591416-0.3656716v-3.4673507l3.761194,3.8330224H4.3167777z M5.8839421,6.2734375H0.9277854

c-0.2350746,0-0.4113806,0.1763058-
0.4113806,0.3983207c0,0.2285452,0.176306,0.404851,0.4113806,0.404851h4.
9561567
c0.2285447,0,0.3983207-0.1763058,0.3983207-
0.404851C6.2822628,6.4497433,6.1124868,6.2734375,5.8839421,6.2734375z
M5.8839421,8.5523558H0.9277854c-0.2350746,0-0.4113806,0.1828356-
0.4113806,0.4113798

c0,0.2220154,0.176306,0.3917913,0.4113806,0.3917913h4.9561567c0.228544
7,0,0.3983207-0.169776,0.3983207-0.3917913

C6.2822628,8.7351913,6.1124868,8.5523558,5.8839421,8.5523558z"></path>
</g></svg> <!----
> 23 of
74 symbols inside <a data-v-354ee602=""
href="/documentation/xcode/embedding-a-helper-tool-in-a-sandboxed-app"
class="leaf-link" id="1788340749" tabindex="-1" aria-describedby="label-
1788340749 <root> usage-1788340749"><p data-v-53c78ce5="" data-v-
354ee602="" class="highlight">Embedding a Command-Line Tool in a
Sandboxed App</p><!----> <div class="vue-
recycle-scroller__item-view" style="transform: translateY(736px);"><div data-v-
354ee602="" data-v-3769e00e="" id="container--1546469342"
class="navigator-card-item" style="--nesting-index: 0;"><div data-v-
354ee602="" class="head-wrapper"><span data-v-354ee602=""
hidden="hidden" id="usage--1546469342"> To navigate the symbols, press Up
Arrow, Down Arrow, Left Arrow or Right Arrow <div data-v-354ee602=""
class="depth-spacer"><!----> <div data-v-7334d1b4="" data-v-
354ee602="" class="NavigatorLeafIcon navigator-icon"><svg data-v-
7f60a732="" data-v-7334d1b4="" aria-hidden="true"
xmlns="http://www.w3.org/2000/svg" class="svg-icon article-icon icon-inline"
viewBox="0 0 14 14"><g data-v-7f60a732="" transform="translate(3.616699,
1.608398)"><path data-v-7f60a732=""
d="M0.0136063,12.3984375H6.948308c1.3516788,0,2.0242538-
0.6856346,2.0242538-2.0438433V4.4254899
c0-0.842351-0.0979481-1.2080226-0.6203365-1.7434704L4.7542777-
0.9812267
C4.2580094-1.490555,3.8466287-1.6015625,3.1152854-
1.6015625H0.0136063c-1.3451493,0-2.0242538,0.6921641-
2.0242538,2.0503731
v9.9057837C-2.0106475,11.7193327-
1.3380729,12.3984375,0.0136063,12.3984375z M0.0593152,11.3471317
c-0.6725746,0-1.0186567-0.3591423-1.0186567-1.0121269V0.4684002c0-
0.6464552,0.346082-1.0186567,1.0251865-1.0186567h2.9057837

v3.7938433c0,0.8227613,0.4113805,1.2276118,1.227612,1.2276118h3.722014
9v5.8638062
c0,0.6529846-0.3460822,1.0121269-1.0251865,1.0121269H0.0593152z
M4.3167777,3.4851911
c-0.2611938,0-0.3591416-0.1044776-0.3591416-0.3656716v-
3.4673507l3.761194,3.8330224H4.3167777z
M5.8839421,6.2734375H0.9277854
c-0.2350746,0-0.4113806,0.1763058-
0.4113806,0.3983207c0,0.2285452,0.176306,0.404851,0.4113806,0.404851h4.
9561567

c0.2285447,0,0.3983207-0.1763058,0.3983207-0.404851C6.2822628,6.4497433,6.1124868,6.2734375,5.8839421,6.2734375z M5.8839421,8.5523558H0.9277854c-0.2350746,0-0.4113806,0.1828356-0.4113806,0.4113798

c0,0.2220154,0.176306,0.3917913,0.4113806,0.3917913h4.9561567c0.2285447,0,0.3983207-0.169776,0.3983207-0.3917913

C6.2822628,8.7351913,6.1124868,8.5523558,5.8839421,8.5523558z"></path></g></svg> <!----> 24 of 74 symbols inside <a data-v-354ee602="" href="/documentation/xcode/embedding-nonstandard-code-structures-in-a-bundle" class="leaf-link" id="-1546469342" tabindex="-1" aria-describedby="label--1546469342 <root> usage--1546469342"> Embedding Nonstandard Code Structures in a Bundle <!----> To navigate the symbols, press Up Arrow, Down Arrow, Left Arrow or Right Arrow <!----> <!----> <!----> 25 of 74 symbols inside <h3 data-v-354ee602="" id="-1788968373" tabindex="-1" aria-describedby="label--1788968373 <root> usage--1788968373" class="leaf-link"> Running Apps </h3><!----> To navigate the symbols, press Up Arrow, Down Arrow, Left Arrow or Right Arrow <!----> <svg data-v-7f60a732="" data-v-7334d1b4="" aria-hidden="true" xmlns="http://www.w3.org/2000/svg" class="svg-icon article-icon icon-inline" viewBox="0 0 14 14"><g data-v-7f60a732="" transform="translate(3.616699, 1.608398)"><path data-v-7f60a732="" d="M0.0136063,12.3984375H6.948308c1.3516788,0,2.0242538-0.6856346,2.0242538-2.0438433V4.4254899 c0-0.842351-0.0979481-1.2080226-0.6203365-1.7434704L4.7542777-0.9812267 C4.2580094-1.490555,3.8466287-1.6015625,3.1152854-1.6015625H0.0136063c-1.3451493,0-2.0242538,0.6921641-2.0242538,2.0503731 v9.9057837C-2.0106475,11.7193327-1.3380729,12.3984375,0.0136063,12.3984375z M0.0593152,11.3471317 c-0.6725746,0-1.0186567-0.3591423-1.0186567-1.0121269V0.4684002c0-0.6464552,0.346082-1.0186567,1.0251865-1.0186567h2.9057837

v3.7938433c0,0.8227613,0.4113805,1.2276118,1.227612,1.2276118h3.7220149v5.8638062
c0,0.6529846-0.3460822,1.0121269-1.0251865,1.0121269H0.0593152z
M4.3167777,3.4851911
c-0.2611938,0-0.3591416-0.1044776-0.3591416-0.3656716v-3.4673507l3.761194,3.8330224H4.3167777z
M5.8839421,6.2734375H0.9277854
c-0.2350746,0-0.4113806,0.1763058-0.4113806,0.3983207c0,0.2285452,0.176306,0.404851,0.4113806,0.404851h4.9561567
c0.2285447,0,0.3983207-0.1763058,0.3983207-0.404851C6.2822628,6.4497433,6.1124868,6.2734375,5.8839421,6.2734375z
M5.8839421,8.5523558H0.9277854c-0.2350746,0-0.4113806,0.1828356-0.4113806,0.4113798

c0,0.2220154,0.176306,0.3917913,0.4113806,0.3917913h4.9561567c0.2285447,0,0.3983207-0.169776,0.3983207-0.3917913

C6.2822628,8.7351913,6.1124868,8.5523558,5.8839421,8.5523558z"></path></g></svg> <!----> 26 of 74 symbols inside <a data-v-354ee602="" href="/documentation/xcode/running-your-app-in-the-simulator-or-on-a-device" class="leaf-link" id="554559411" tabindex="-1" aria-describedby="label-554559411 <root> usage-554559411"> Running Your App in the Simulator or on a Device <!----> To navigate the symbols, press Up Arrow, Down Arrow, Left Arrow or Right Arrow <!----> <svg data-v-7f60a732="" data-v-7334d1b4="" aria-hidden="true" xmlns="http://www.w3.org/2000/svg" class="svg-icon article-icon icon-inline" viewBox="0 0 14 14"><g data-v-7f60a732="" transform="translate(3.616699, 1.608398)"><path data-v-7f60a732="" d="M0.0136063,12.3984375H6.948308c1.3516788,0,2.0242538-0.6856346,2.0242538-2.0438433V4.4254899
c0-0.842351-0.0979481-1.2080226-0.6203365-1.7434704L4.7542777-0.9812267
C4.2580094-1.490555,3.8466287-1.6015625,3.1152854-1.6015625H0.0136063c-1.3451493,0-2.0242538,0.6921641-2.0242538,2.0503731
v9.9057837C-2.0106475,11.7193327-1.3380729,12.3984375,0.0136063,12.3984375z M0.0593152,11.3471317
c-0.6725746,0-1.0186567-0.3591423-1.0186567-1.0121269V0.4684002c0-0.6464552,0.346082-1.0186567,1.0251865-1.0186567h2.9057837

v3.7938433c0,0.8227613,0.4113805,1.2276118,1.227612,1.2276118h3.7220149v5.8638062

c0,0.6529846-0.3460822,1.0121269-1.0251865,1.0121269H0.0593152z
M4.3167777,3.4851911
c-0.2611938,0-0.3591416-0.1044776-0.3591416-0.3656716v-
3.4673507l3.761194,3.8330224H4.3167777z
M5.8839421,6.2734375H0.9277854
c-0.2350746,0-0.4113806,0.1763058-
0.4113806,0.3983207c0,0.2285452,0.176306,0.404851,0.4113806,0.404851h4.
9561567
c0.2285447,0,0.3983207-0.1763058,0.3983207-
0.404851C6.2822628,6.4497433,6.1124868,6.2734375,5.8839421,6.2734375z
M5.8839421,8.5523558H0.9277854c-0.2350746,0-0.4113806,0.1828356-
0.4113806,0.4113798

c0,0.2220154,0.176306,0.3917913,0.4113806,0.3917913h4.9561567c0.228544
7,0,0.3983207-0.169776,0.3983207-0.3917913

C6.2822628,8.7351913,6.1124868,8.5523558,5.8839421,8.5523558z"></path>
</g></svg> <!----
> 27 of
74 symbols inside <a data-v-354ee602=""
href="/documentation/xcode/installing-additional-simulator-runtimes"
class="leaf-link" id="1291276683" tabindex="-1" aria-describedby="label-
1291276683 <root> usage-1291276683"><p data-v-53c78ce5="" data-v-
354ee602="" class="highlight">Installing and managing simulator
runtimes</p><!----> <div class="vue-recycle-
scroller__item-view" style="transform: translateY(864px);"><div data-v-
354ee602="" data-v-3769e00e="" id="container--1002251360"
class="navigator-card-item" style="--nesting-index: 0;"><div data-v-
354ee602="" class="head-wrapper"><span data-v-354ee602=""
hidden="hidden" id="usage--1002251360"> To navigate the symbols, press Up
Arrow, Down Arrow, Left Arrow or Right Arrow <div data-v-354ee602=""
class="depth-spacer"><!----> <div data-v-7334d1b4="" data-v-
354ee602="" class="NavigatorLeafIcon navigator-icon"><svg data-v-
7f60a732="" data-v-7334d1b4="" aria-hidden="true"
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1.608398)"><path data-v-7f60a732=""
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c0-0.842351-0.0979481-1.2080226-0.6203365-1.7434704L4.7542777-
0.9812267
C4.2580094-1.490555,3.8466287-1.6015625,3.1152854-
1.6015625H0.0136063c-1.3451493,0-2.0242538,0.6921641-
2.0242538,2.0503731
v9.9057837C-2.0106475,11.7193327-
1.3380729,12.3984375,0.0136063,12.3984375z M0.0593152,11.3471317
c-0.6725746,0-1.0186567-0.3591423-1.0186567-1.0121269V0.4684002c0-
0.6464552,0.346082-1.0186567,1.0251865-1.0186567h2.9057837

v3.7938433c0,0.8227613,0.4113805,1.2276118,1.227612,1.2276118h3.722014
9v5.8638062
c0,0.6529846-0.3460822,1.0121269-1.0251865,1.0121269H0.0593152z
M4.3167777,3.4851911

c-0.2611938,0-0.3591416-0.1044776-0.3591416-0.3656716v-3.4673507l3.761194,3.8330224H4.3167777z
M5.8839421,6.2734375H0.9277854
c-0.2350746,0-0.4113806,0.1763058-0.4113806,0.3983207c0,0.2285452,0.176306,0.404851,0.4113806,0.404851h4.9561567
c0.2285447,0,0.3983207-0.1763058,0.3983207-0.404851C6.2822628,6.4497433,6.1124868,6.2734375,5.8839421,6.2734375z
M5.8839421,8.5523558H0.9277854c-0.2350746,0-0.4113806,0.1828356-0.4113806,0.4113798

c0,0.2220154,0.176306,0.3917913,0.4113806,0.3917913h4.9561567c0.2285447,0,0.3983207-0.169776,0.3983207-0.3917913

C6.2822628,8.7351913,6.1124868,8.5523558,5.8839421,8.5523558z"></path></g></svg> <!----> 28 of 74 symbols inside <a data-v-354ee602="" href="/documentation/xcode/enabling-developer-mode-on-a-device" class="leaf-link" id="-1002251360" tabindex="-1" aria-describedby="label--1002251360 <root> usage--1002251360"> Enabling Developer Mode on a device <!----> To navigate the symbols, press Up Arrow, Down Arrow, Left Arrow or Right Arrow <!----> <!----> <!----> 29 of 74 symbols inside <h3 data-v-354ee602="" id="-1788968369" tabindex="-1" aria-describedby="label--1788968369 <root> usage--1788968369" class="leaf-link"> Debugging </h3><!----> To navigate the symbols, press Up Arrow, Down Arrow, Left Arrow or Right Arrow <!----> <svg data-v-7f60a732="" data-v-7334d1b4="" aria-hidden="true" xmlns="http://www.w3.org/2000/svg" class="svg-icon article-icon icon-inline" viewBox="0 0 14 14"><g data-v-7f60a732="" transform="translate(3.616699, 1.608398)"><path data-v-7f60a732="" d="M0.0136063,12.3984375H6.948308c1.3516788,0,2.0242538-0.6856346,2.0242538-2.0438433V4.4254899
c0-0.842351-0.0979481-1.2080226-0.6203365-1.7434704L4.7542777-0.9812267

C4.2580094-1.490555,3.8466287-1.6015625,3.1152854-
1.6015625H0.0136063c-1.3451493,0-2.0242538,0.6921641-
2.0242538,2.0503731
v9.9057837C-2.0106475,11.7193327-
1.3380729,12.3984375,0.0136063,12.3984375z M0.0593152,11.3471317
c-0.6725746,0-1.0186567-0.3591423-1.0186567-1.0121269V0.4684002c0-
0.6464552,0.346082-1.0186567,1.0251865-1.0186567h2.9057837

v3.7938433c0,0.8227613,0.4113805,1.2276118,1.227612,1.2276118h3.722014
9v5.8638062
c0,0.6529846-0.3460822,1.0121269-1.0251865,1.0121269H0.0593152z
M4.3167777,3.4851911
c-0.2611938,0-0.3591416-0.1044776-0.3591416-0.3656716v-
3.4673507l3.761194,3.8330224H4.3167777z
M5.8839421,6.2734375H0.9277854
c-0.2350746,0-0.4113806,0.1763058-
0.4113806,0.3983207c0,0.2285452,0.176306,0.404851,0.4113806,0.404851h4.
9561567
c0.2285447,0,0.3983207-0.1763058,0.3983207-
0.404851C6.2822628,6.4497433,6.1124868,6.2734375,5.8839421,6.2734375z
M5.8839421,8.5523558H0.9277854c-0.2350746,0-0.4113806,0.1828356-
0.4113806,0.4113798

c0,0.2220154,0.176306,0.3917913,0.4113806,0.3917913h4.9561567c0.228544
7,0,0.3983207-0.169776,0.3983207-0.3917913

C6.2822628,8.7351913,6.1124868,8.5523558,5.8839421,8.5523558z"></path>
</g></svg> <!----
> 30 of
74 symbols inside <a data-v-354ee602=""
href="/documentation/xcode/diagnosing-and-resolving-bugs-in-your-running-
app" class="leaf-link" id="2028199961" tabindex="-1" aria-describedby="label-
2028199961 <root> usage-2028199961"><p data-v-53c78ce5="" data-v-
354ee602="" class="highlight">Diagnosing and Resolving Bugs in Your Running
App</p><!----> <div class="vue-recycle-
scroller__item-view" style="transform: translateY(960px);"><div data-v-
354ee602="" data-v-3769e00e="" id="container--1952030988"
class="navigator-card-item" style="--nesting-index: 0;"><div data-v-
354ee602="" class="head-wrapper"><span data-v-354ee602=""
hidden="hidden" id="usage--1952030988"> To navigate the symbols, press Up
Arrow, Down Arrow, Left Arrow or Right Arrow <div data-v-354ee602=""
class="depth-spacer"><!----> <div data-v-7334d1b4="" data-v-
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7f60a732="" data-v-7334d1b4="" aria-hidden="true"
xmlns="http://www.w3.org/2000/svg" class="svg-icon article-icon icon-inline"
viewBox="0 0 14 14"><g data-v-7f60a732="" transform="translate(3.616699,
1.608398)"><path data-v-7f60a732=""
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0.6856346,2.0242538-2.0438433V4.4254899
c0-0.842351-0.0979481-1.2080226-0.6203365-1.7434704L4.7542777-
0.9812267
C4.2580094-1.490555,3.8466287-1.6015625,3.1152854-
1.6015625H0.0136063c-1.3451493,0-2.0242538,0.6921641-
2.0242538,2.0503731

v9.9057837C-2.0106475,11.7193327-1.3380729,12.3984375,0.0136063,12.3984375z M0.0593152,11.3471317c-0.6725746,0-1.0186567-0.3591423-1.0186567-1.0121269V0.4684002c0-0.6464552,0.346082-1.0186567,1.0251865-1.0186567h2.9057837

v3.7938433c0,0.8227613,0.4113805,1.2276118,1.227612,1.2276118h3.7220149v5.8638062c0,0.6529846-0.3460822,1.0121269-1.0251865,1.0121269H0.0593152z M4.3167777,3.4851911c-0.2611938,0-0.3591416-0.1044776-0.3591416-0.3656716v-3.4673507l3.761194,3.8330224H4.3167777z M5.8839421,6.2734375H0.9277854c-0.2350746,0-0.4113806,0.1763058-0.4113806,0.3983207c0,0.2285452,0.176306,0.404851,0.4113806,0.404851h4.9561567c0.2285447,0,0.3983207-0.1763058,0.3983207-0.404851C6.2822628,6.4497433,6.1124868,6.2734375,5.8839421,6.2734375z M5.8839421,8.5523558H0.9277854c-0.2350746,0-0.4113806,0.1828356-0.4113806,0.4113798

c0,0.2220154,0.176306,0.3917913,0.4113806,0.3917913h4.9561567c0.2285447,0,0.3983207-0.169776,0.3983207-0.3917913

C6.2822628,8.7351913,6.1124868,8.5523558,5.8839421,8.5523558z"></path></g></svg> <!----> 31 of 74 symbols inside <a data-v-354ee602="" href="/documentation/xcode/setting-breakpoints-to-pause-your-running-app" class="leaf-link" id="-1952030988" tabindex="-1" aria-describedby="label--1952030988 <root> usage--1952030988"> Setting Breakpoints to Pause Your Running App <!----> To navigate the symbols, press Up Arrow, Down Arrow, Left Arrow or Right Arrow <!----> <svg data-v-7f60a732="" data-v-7334d1b4="" aria-hidden="true" xmlns="http://www.w3.org/2000/svg" class="svg-icon article-icon icon-inline" viewBox="0 0 14 14"><g data-v-7f60a732="" transform="translate(3.616699, 1.608398)"><path data-v-7f60a732="" d="M0.0136063,12.3984375H6.948308c1.3516788,0,2.0242538-0.6856346,2.0242538-2.0438433V4.4254899c0-0.842351-0.0979481-1.2080226-0.6203365-1.7434704L4.7542777-0.9812267C4.2580094-1.490555,3.8466287-1.6015625,3.1152854-1.6015625H0.0136063c-1.3451493,0-2.0242538,0.6921641-2.0242538,2.0503731
v9.9057837C-2.0106475,11.7193327-1.3380729,12.3984375,0.0136063,12.3984375z M0.0593152,11.3471317c-0.6725746,0-1.0186567-0.3591423-1.0186567-1.0121269V0.4684002c0-0.6464552,0.346082-1.0186567,1.0251865-1.0186567h2.9057837

v3.7938433c0,0.8227613,0.4113805,1.2276118,1.227612,1.2276118h3.7220149v5.8638062
c0,0.6529846-0.3460822,1.0121269-1.0251865,1.0121269H0.0593152z
M4.3167777,3.4851911
c-0.2611938,0-0.3591416-0.1044776-0.3591416-0.3656716v-3.4673507l3.761194,3.8330224H4.3167777z
M5.8839421,6.2734375H0.9277854
c-0.2350746,0-0.4113806,0.1763058-0.4113806,0.3983207c0,0.2285452,0.176306,0.404851,0.4113806,0.404851h4.9561567
c0.2285447,0,0.3983207-0.1763058,0.3983207-0.404851C6.2822628,6.4497433,6.1124868,6.2734375,5.8839421,6.2734375z
M5.8839421,8.5523558H0.9277854c-0.2350746,0-0.4113806,0.1828356-0.4113806,0.4113798

c0,0.2220154,0.176306,0.3917913,0.4113806,0.3917913h4.9561567c0.2285447,0,0.3983207-0.169776,0.3983207-0.3917913

C6.2822628,8.7351913,6.1124868,8.5523558,5.8839421,8.5523558z"></path></g></svg> <!----> 32 of 74 symbols inside <a data-v-354ee602="" href="/documentation/xcode/stepping-through-code-and-inspecting-variables-to-isolate-bugs" class="leaf-link" id="427086892" tabindex="-1" aria-describedby="label-427086892 <root> usage-427086892"> Stepping Through Code and Inspecting Variables to Isolate Bugs <!----> To navigate the symbols, press Up Arrow, Down Arrow, Left Arrow or Right Arrow <!----> <svg data-v-7f60a732="" data-v-7334d1b4="" aria-hidden="true" xmlns="http://www.w3.org/2000/svg" class="svg-icon article-icon icon-inline" viewBox="0 0 14 14"><g data-v-7f60a732="" transform="translate(3.616699, 1.608398)"><path data-v-7f60a732="" d="M0.0136063,12.3984375H6.948308c1.3516788,0,2.0242538-0.6856346,2.0242538-2.0438433V4.4254899
c0-0.842351-0.0979481-1.2080226-0.6203365-1.7434704L4.7542777-0.9812267
C4.2580094-1.490555,3.8466287-1.6015625,3.1152854-1.6015625H0.0136063c-1.3451493,0-2.0242538,0.6921641-2.0242538,2.0503731
v9.9057837C-2.0106475,11.7193327-1.3380729,12.3984375,0.0136063,12.3984375z M0.0593152,11.3471317
c-0.6725746,0-1.0186567-0.3591423-1.0186567-1.0121269V0.4684002c0-0.6464552,0.346082-1.0186567,1.0251865-1.0186567h2.9057837

v3.7938433c0,0.8227613,0.4113805,1.2276118,1.227612,1.2276118h3.7220149v5.8638062
c0,0.6529846-0.3460822,1.0121269-1.0251865,1.0121269H0.0593152z
M4.3167777,3.4851911
c-0.2611938,0-0.3591416-0.1044776-0.3591416-0.3656716v-3.4673507l3.761194,3.8330224H4.3167777z
M5.8839421,6.2734375H0.9277854
c-0.2350746,0-0.4113806,0.1763058-0.4113806,0.3983207c0,0.2285452,0.176306,0.404851,0.4113806,0.404851h4.9561567
c0.2285447,0,0.3983207-0.1763058,0.3983207-0.404851C6.2822628,6.4497433,6.1124868,6.2734375,5.8839421,6.2734375z
M5.8839421,8.5523558H0.9277854c-0.2350746,0-0.4113806,0.1828356-0.4113806,0.4113798

c0,0.2220154,0.176306,0.3917913,0.4113806,0.3917913h4.9561567c0.2285447,0,0.3983207-0.169776,0.3983207-0.3917913

C6.2822628,8.7351913,6.1124868,8.5523558,5.8839421,8.5523558z"></path></g></svg> <!----> 33 of 74 symbols inside <a data-v-354ee602="" href="/documentation/xcode/building-your-app-to-include-debugging-information" class="leaf-link" id="59239239" tabindex="-1" aria-describedby="label-59239239 <root> usage-59239239"> Building Your App to Include Debugging Information <!----> To navigate the symbols, press Up Arrow, Down Arrow, Left Arrow or Right Arrow <!----> <svg data-v-7f60a732="" data-v-7334d1b4="" aria-hidden="true" xmlns="http://www.w3.org/2000/svg" class="svg-icon article-icon icon-inline" viewBox="0 0 14 14"><g data-v-7f60a732="" transform="translate(3.616699, 1.608398)"><path data-v-7f60a732="" d="M0.0136063,12.3984375H6.948308c1.3516788,0,2.0242538-0.6856346,2.0242538-2.0438433V4.4254899
c0-0.842351-0.0979481-1.2080226-0.6203365-1.7434704L4.7542777-0.9812267
C4.2580094-1.490555,3.8466287-1.6015625,3.1152854-1.6015625H0.0136063c-1.3451493,0-2.0242538,0.6921641-2.0242538,2.0503731
v9.9057837C-2.0106475,11.7193327-1.3380729,12.3984375,0.0136063,12.3984375z M0.0593152,11.3471317
c-0.6725746,0-1.0186567-0.3591423-1.0186567-1.0121269V0.4684002c0-0.6464552,0.346082-1.0186567,1.0251865-1.0186567h2.9057837

v3.7938433c0,0.8227613,0.4113805,1.2276118,1.227612,1.2276118h3.7220149v5.8638062

c0,0.6529846-0.3460822,1.0121269-1.0251865,1.0121269H0.0593152z
M4.3167777,3.4851911
c-0.2611938,0-0.3591416-0.1044776-0.3591416-0.3656716v-
3.4673507l3.761194,3.8330224H4.3167777z
M5.8839421,6.2734375H0.9277854
c-0.2350746,0-0.4113806,0.1763058-
0.4113806,0.3983207c0,0.2285452,0.176306,0.404851,0.4113806,0.404851h4.
9561567
c0.2285447,0,0.3983207-0.1763058,0.3983207-
0.404851C6.2822628,6.4497433,6.1124868,6.2734375,5.8839421,6.2734375z
M5.8839421,8.5523558H0.9277854c-0.2350746,0-0.4113806,0.1828356-
0.4113806,0.4113798

c0,0.2220154,0.176306,0.3917913,0.4113806,0.3917913h4.9561567c0.228544
7,0,0.3983207-0.169776,0.3983207-0.3917913

C6.2822628,8.7351913,6.1124868,8.5523558,5.8839421,8.5523558z"></path>
</g></svg> <!----
> 34 of 74
symbols inside <a data-v-354ee602=""
href="/documentation/foundation/url_loading_system/analyzing_http_traffic_with
_instruments" class="leaf-link" id="78284226" tabindex="-1" aria-
describedby="label-78284226 <root> usage-78284226"><p data-v-
53c78ce5="" data-v-354ee602="" class="highlight">Analyzing HTTP Traffic with
Instruments</p><!----> <div class="vue-
recycle-scroller__item-view" style="transform: translateY(-9999px);"><div data-
v-354ee602="" data-v-3769e00e="" id="container--858340427"
class="navigator-card-item" style="--nesting-index: 0;" aria-hidden="true"><div
data-v-354ee602="" class="head-wrapper"><span data-v-354ee602=""
hidden="hidden" id="usage--858340427"> To navigate the symbols, press Up
Arrow, Down Arrow, Left Arrow or Right Arrow <div data-v-354ee602=""
class="depth-spacer"><!----> <div data-v-7334d1b4="" data-v-
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xmlns="http://www.w3.org/2000/svg" class="svg-icon article-icon icon-inline"
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1.608398)"><path data-v-7f60a732=""
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c0-0.842351-0.0979481-1.2080226-0.6203365-1.7434704L4.7542777-
0.9812267
C4.2580094-1.490555,3.8466287-1.6015625,3.1152854-
1.6015625H0.0136063c-1.3451493,0-2.0242538,0.6921641-
2.0242538,2.0503731
v9.9057837C-2.0106475,11.7193327-
1.3380729,12.3984375,0.0136063,12.3984375z M0.0593152,11.3471317
c-0.6725746,0-1.0186567-0.3591423-1.0186567-1.0121269V0.4684002c0-
0.6464552,0.346082-1.0186567,1.0251865-1.0186567h2.9057837

v3.7938433c0,0.8227613,0.4113805,1.2276118,1.227612,1.2276118h3.722014
9v5.8638062
c0,0.6529846-0.3460822,1.0121269-1.0251865,1.0121269H0.0593152z
M4.3167777,3.4851911

c-0.2611938,0-0.3591416-0.1044776-0.3591416-0.3656716v-
3.4673507l3.761194,3.8330224H4.3167777z
M5.8839421,6.2734375H0.9277854
c-0.2350746,0-0.4113806,0.1763058-
0.4113806,0.3983207c0,0.2285452,0.176306,0.404851,0.4113806,0.404851h4.
9561567
c0.2285447,0,0.3983207-0.1763058,0.3983207-
0.404851C6.2822628,6.4497433,6.1124868,6.2734375,5.8839421,6.2734375z
M5.8839421,8.5523558H0.9277854c-0.2350746,0-0.4113806,0.1828356-
0.4113806,0.4113798

c0,0.2220154,0.176306,0.3917913,0.4113806,0.3917913h4.9561567c0.228544
7,0,0.3983207-0.169776,0.3983207-0.3917913

C6.2822628,8.7351913,6.1124868,8.5523558,5.8839421,8.5523558z"></path>
</g></svg> <!----
> 35 of 74
symbols inside <a data-v-354ee602=""
href="/documentation/bundleresources/entitlements/diagnosing_issues_with_enti
tlements" class="leaf-link" id="-858340427" tabindex="-1" aria-
describedby="label--858340427 <root> usage--858340427"><p data-v-
53c78ce5="" data-v-354ee602="" class="highlight">Diagnosing Issues with
Entitlements</p><!----> <div class="vue-
recycle-scroller__item-view" style="transform: translateY(-9999px);"><div data-
v-354ee602="" data-v-3769e00e="" id="container-1920082270"
class="navigator-card-item" style="--nesting-index: 0;" aria-hidden="true"><div
data-v-354ee602="" class="head-wrapper"><span data-v-354ee602=""
hidden="hidden" id="usage-1920082270"> To navigate the symbols, press Up
Arrow, Down Arrow, Left Arrow or Right Arrow <div data-v-354ee602=""
class="depth-spacer"><button data-v-354ee602="" tabindex="-1" aria-
labelledby="1920082270" aria-expanded="false" aria-describedby="label-
1920082270 <root> label-parent-1920082270" class="tree-toggle"><svg data-
v-7f60a732="" data-v-354ee602="" aria-hidden="true"
xmlns="http://www.w3.org/2000/svg" class="svg-icon inline-chevron-right-icon
icon-inline chevron" viewBox="0 0 14 14"><path data-v-7f60a732=""
d="m4.81347656 13.1269531c.22558594
0 .41015625-.0820312.56738282-.2324219l5.31835942-
5.19531245c.1845703-.19140625.2802734-.38964844.2802734-.63574219
0-.23925781-.0888672-.45117187-.2802734-.62890625l-5.31835942-
5.20214843c-.15722657-.15039063-.34179688-.23242188-.56738282-.2324218
8-.45800781 0-.81347656.35546875-.81347656.80664062
0 .21875.09570312.43066407.24609375.58789063l4.79199219 4.67578125-
4.79199219
4.6621094c-.15722656.1640625-.24609375.3623047-.24609375.5878906
0
.4511719.35546875.8066406.81347656.8066406z"></path></svg></button>
<div data-v-7334d1b4="" data-v-354ee602="" class="NavigatorLeafIcon
navigator-icon"><svg data-v-7f60a732="" data-v-7334d1b4="" aria-
hidden="true" xmlns="http://www.w3.org/2000/svg" class="svg-icon collection-
icon icon-inline" viewBox="0 0 14 14"><title
data-v-7f60a732="">Collection</title><g data-v-7f60a732=""
transform="translate(2.116699, 4.455566)"><path data-v-7f60a732="" d="M-
1.2412647-0.767793c0.4863523,0,0.8754342-0.3890819,0.8754342-0.8684863

c0-0.4863524-0.3890819-0.8754342-0.8754342-0.8754342S-2.116699-2.1226318-2.116699-1.6362793
C-2.116699-1.1568749-1.7276171-0.767793-1.2412647-0.767793z M1.829703-1.0804482h9.490819
c0.3126545,0,0.5627785-0.2431761,0.5627785-0.5558312c0-0.319603-0.250124-0.5627792-0.5627785-0.5627792H1.829703
c-0.319603,0-0.5627792,0.2431762-0.5627792,0.5627792C1.2669238-1.3236243,1.5101-1.0804482,1.829703-1.0804482z
M-1.2412647,3.4356809c0.4863523,0,0.8754342-0.3890817,0.8754342-0.8754342s-0.3890819-0.8754343-0.8754342-0.8754343
S-2.116699,2.0738943-2.116699,2.5602467S-1.7276171,3.4356809-1.2412647,3.4356809z M1.829703,3.1230259h9.490819
c0.3126545,0,0.5627785-0.2501242,0.5627785-0.5627792s-0.250124-0.5558312-0.5627785-0.5558312H1.829703
c-0.319603,0-0.5627792,0.243176-0.5627792,0.5558312S1.5101,3.1230259,1.829703,3.1230259z M-1.2412647,7.6391549
c0.4863523,0,0.8754342-0.3960299,0.8754342-0.8754344c0-0.4863524-0.3890819-0.8754339-0.8754342-0.8754339
S-2.116699,6.2773681-2.116699,6.7637205C-2.116699,7.243125-1.7276171,7.6391549-1.2412647,7.6391549z M1.829703,7.3195519
h9.490819c0.3126545,0,0.5627785-0.2431765,0.5627785-0.5558314c0-0.319603-0.250124-0.5627789-0.5627785-0.5627789H1.829703
c-0.319603,0-0.5627792,0.243176-0.5627792,0.5627789C1.2669238,7.0763755,1.5101,7.3195519,1.829703,7.3195519z"></path></g></svg> , containing 31 symbols 36 of 74 symbols inside <a data-v-354ee602="" href="/documentation/xcode/diagnosing-memory-thread-and-crash-issues-early" class="leaf-link" id="1920082270" tabindex="-1" aria-describedby="label-1920082270 <root> label-parent-1920082270 usage-1920082270"> Diagnosing Memory, Thread, and Crash Issues Early <!----> To navigate the symbols, press Up Arrow, Down Arrow, Left Arrow or Right Arrow <button data-v-354ee602="" tabindex="-1" aria-labelledby="-67825086" aria-expanded="true" aria-describedby="label--67825086 <root> label-parent--67825086" class="tree-toggle"><svg data-v-7f60a732="" data-v-354ee602="" aria-hidden="true" xmlns="http://www.w3.org/2000/svg" class="svg-icon inline-chevron-right-icon icon-inline chevron rotate" viewBox="0 0 14 14"><path data-v-7f60a732="" d="m4.81347656 13.1269531c.22558594 0 .41015625-.0820312.56738282-.2324219l5.31835942-5.19531245c.1845703-.19140625.2802734-.38964844.2802734-.63574219 0-.23925781-.0888672-.45117187-.2802734-.62890625l-5.31835942-5.20214843c-.15722657-.15039063-.34179688-.23242188-.56738282-.23242188-.45800781 0-.81347656.35546875-.81347656.80664062 0 .21875.09570312.43066407.24609375.58789063l4.79199219 4.67578125-

4.79199219
4.6621094c-.15722656.1640625-.24609375.3623047-.24609375.5878906
0
.4511719.35546875.8066406.81347656.8066406z"></path></svg></button>
<div data-v-7334d1b4="" data-v-354ee602="" class="NavigatorLeafIcon
navigator-icon"><svg data-v-7f60a732="" data-v-7334d1b4="" aria-
hidden="true" xmlns="http://www.w3.org/2000/svg" class="svg-icon collection-
icon icon-inline" viewBox="0 0 14 14"><title
data-v-7f60a732="">Collection</title><g data-v-7f60a732=""
transform="translate(2.116699, 4.455566)"><path data-v-7f60a732="" d="M-
1.2412647-0.767793c0.4863523,0,0.8754342-0.3890819,0.8754342-0.8684863
c0-0.4863524-0.3890819-0.8754342-0.8754342-0.8754342S-2.116699-
2.1226318-2.116699-1.6362793
C-2.116699-1.1568749-1.7276171-0.767793-1.2412647-0.767793z
M1.829703-1.0804482h9.490819
c0.3126545,0,0.5627785-0.2431761,0.5627785-0.5558312c0-0.319603-
0.250124-0.5627792-0.5627785-0.5627792H1.829703
c-0.319603,0-0.5627792,0.2431762-0.5627792,0.5627792C1.2669238-
1.3236243,1.5101-1.0804482,1.829703-1.0804482z
M-1.2412647,3.4356809c0.4863523,0,0.8754342-0.3890817,0.8754342-
0.8754342s-0.3890819-0.8754343-0.8754342-0.8754343
S-2.116699,2.0738943-2.116699,2.5602467S-1.7276171,3.4356809-
1.2412647,3.4356809z M1.829703,3.1230259h9.490819
c0.3126545,0,0.5627785-0.2501242,0.5627785-0.5627792s-0.250124-
0.5558312-0.5627785-0.5558312H1.829703
c-0.319603,0-0.5627792,0.243176-
0.5627792,0.5558312S1.5101,3.1230259,1.829703,3.1230259z M-
1.2412647,7.6391549
c0.4863523,0,0.8754342-0.3960299,0.8754342-0.8754344c0-0.4863524-
0.3890819-0.8754339-0.8754342-0.8754339
S-2.116699,6.2773681-2.116699,6.7637205C-2.116699,7.243125-
1.7276171,7.6391549-1.2412647,7.6391549z M1.829703,7.3195519
h9.490819c0.3126545,0,0.5627785-0.2431765,0.5627785-0.5558314c0-
0.319603-0.250124-0.5627789-0.5627785-0.5627789H1.829703
c-0.319603,0-0.5627792,0.243176-
0.5627792,0.5627789C1.2669238,7.0763755,1.5101,7.3195519,1.829703,7.319
5519z"></path></g></svg> <div data-v-354ee602="" class="title-
container"><span data-v-354ee602="" hidden="hidden" id="label-parent--
67825086">, containing 11 symbols<span data-v-354ee602=""
id="label--67825086" hidden="hidden"> 37 of 74 symbols inside <a
data-v-354ee602="" href="/documentation/xcode/diagnosing-issues-using-
crash-reports-and-device-logs" class="leaf-link" id="-67825086" tabindex="-1"
aria-describedby="label--67825086 <root> label-parent--67825086 usage--
67825086"><p data-v-53c78ce5="" data-v-354ee602=""
class="highlight">Diagnosing Issues Using Crash Reports and Device
Logs</p><!----> <div class="vue-recycle-
scroller__item-view" style="transform: translateY(-9999px);"><div data-v-
354ee602="" data-v-3769e00e="" id="container--82741719" class="navigator-
card-item" style="--nesting-index: 1;" aria-hidden="true"><div data-v-
354ee602="" class="head-wrapper is-group"><span data-v-354ee602=""
hidden="hidden" id="usage--82741719"> To navigate the symbols, press Up
Arrow, Down Arrow, Left Arrow or Right Arrow <div data-v-354ee602=""
class="depth-spacer"><!----> <!----><div data-v-354ee602=""
class="title-container"><!----><span data-v-354ee602="" id="label--82741719"

hidden="hidden"> 1 of 11 symbols inside <h3 data-v-354ee602="" id="-82741719" tabindex="-1" aria-describedby="label--82741719 -67825086 usage--82741719" class="leaf-link"> Essentials </h3><!----> To navigate the symbols, press Up Arrow, Down Arrow, Left Arrow or Right Arrow <!----> <svg data-v-7f60a732="" data-v-7334d1b4="" aria-hidden="true" xmlns="http://www.w3.org/2000/svg" class="svg-icon article-icon icon-inline" viewBox="0 0 14 14"><g data-v-7f60a732="" transform="translate(3.616699, 1.608398)"><path data-v-7f60a732="" d="M0.0136063,12.3984375H6.948308c1.3516788,0,2.0242538-0.6856346,2.0242538-2.0438433V4.4254899
c0-0.842351-0.0979481-1.2080226-0.6203365-1.7434704L4.7542777-0.9812267
C4.2580094-1.490555,3.8466287-1.6015625,3.1152854-1.6015625H0.0136063c-1.3451493,0-2.0242538,0.6921641-2.0242538,2.0503731
v9.9057837C-2.0106475,11.7193327-1.3380729,12.3984375,0.0136063,12.3984375z M0.0593152,11.3471317
c-0.6725746,0-1.0186567-0.3591423-1.0186567-1.0121269V0.4684002c0-0.6464552,0.346082-1.0186567,1.0251865-1.0186567h2.9057837

v3.7938433c0,0.8227613,0.4113805,1.2276118,1.227612,1.2276118h3.7220149v5.8638062
c0,0.6529846-0.3460822,1.0121269-1.0251865,1.0121269H0.0593152z M4.3167777,3.4851911
c-0.2611938,0-0.3591416-0.1044776-0.3591416-0.3656716v-3.4673507l3.761194,3.8330224H4.3167777z M5.8839421,6.2734375H0.9277854
c-0.2350746,0-0.4113806,0.1763058-0.4113806,0.3983207c0,0.2285452,0.176306,0.404851,0.4113806,0.404851h4.9561567
c0.2285447,0,0.3983207-0.1763058,0.3983207-0.404851C6.2822628,6.4497433,6.1124868,6.2734375,5.8839421,6.2734375z
M5.8839421,8.5523558H0.9277854c-0.2350746,0-0.4113806,0.1828356-0.4113806,0.4113798

c0,0.2220154,0.176306,0.3917913,0.4113806,0.3917913h4.9561567c0.2285447,0,0.3983207-0.169776,0.3983207-0.3917913

C6.2822628,8.7351913,6.1124868,8.5523558,5.8839421,8.5523558z"></path></g></svg> <!----> 2 of 11 symbols inside <a data-v-354ee602="" href="/documentation/xcode/acquiring-crash-reports-and-diagnostic-logs" class="leaf-link" id="1415964305" tabindex="-1" aria-describedby="label-1415964305 -67825086 usage-1415964305"><p data-v-53c78ce5="" data-v-

354ee602="" class="highlight">Acquiring Crash Reports and Diagnostic Logs <!----> To navigate the symbols, press Up Arrow, Down Arrow, Left Arrow or Right Arrow <!----> <!----> <!----> 3 of 11 symbols inside <h3 data-v-354ee602="" id="-82741717" tabindex="-1" aria-describedby="label--82741717 -67825086 usage--82741717" class="leaf-link"> Crash Reports </h3><!----> To navigate the symbols, press Up Arrow, Down Arrow, Left Arrow or Right Arrow <!----> <svg data-v-7f60a732="" data-v-7334d1b4="" aria-hidden="true" xmlns="http://www.w3.org/2000/svg" class="svg-icon article-icon icon-inline" viewBox="0 0 14 14"><g data-v-7f60a732="" transform="translate(3.616699, 1.608398)"><path data-v-7f60a732="" d="M0.0136063,12.3984375H6.948308c1.3516788,0,2.0242538-0.6856346,2.0242538-2.0438433V4.4254899
c0-0.842351-0.0979481-1.2080226-0.6203365-1.7434704L4.7542777-0.9812267
C4.2580094-1.490555,3.8466287-1.6015625,3.1152854-1.6015625H0.0136063c-1.3451493,0-2.0242538,0.6921641-2.0242538,2.0503731
v9.9057837C-2.0106475,11.7193327-1.3380729,12.3984375,0.0136063,12.3984375z M0.0593152,11.3471317
c-0.6725746,0-1.0186567-0.3591423-1.0186567-1.0121269V0.4684002c0-0.6464552,0.346082-1.0186567,1.0251865-1.0186567h2.9057837

v3.7938433c0,0.8227613,0.4113805,1.2276118,1.227612,1.2276118h3.7220149v5.8638062
c0,0.6529846-0.3460822,1.0121269-1.0251865,1.0121269H0.0593152z M4.3167777,3.4851911
c-0.2611938,0-0.3591416-0.1044776-0.3591416-0.3656716v-3.4673507l3.761194,3.8330224H4.3167777z M5.8839421,6.2734375H0.9277854
c-0.2350746,0-0.4113806,0.1763058-0.4113806,0.3983207c0,0.2285452,0.176306,0.404851,0.4113806,0.404851h4.9561567
c0.2285447,0,0.3983207-0.1763058,0.3983207-0.404851C6.2822628,6.4497433,6.1124868,6.2734375,5.8839421,6.2734375z
M5.8839421,8.5523558H0.9277854c-0.2350746,0-0.4113806,0.1828356-0.4113806,0.4113798

c0,0.2220154,0.176306,0.3917913,0.4113806,0.3917913h4.9561567c0.2285447,0,0.3983207-0.169776,0.3983207-0.3917913

C6.2822628,8.7351913,6.1124868,8.5523558,5.8839421,8.5523558z"></path></g></svg> <!----> 4 of 11 symbols inside <a data-v-354ee602="" href="/documentation/xcode/adding-identifiable-symbol-names-to-a-crash-report" class="leaf-link" id="-63945549" tabindex="-1" aria-describedby="label--63945549 -67825086 usage--63945549"> Adding Identifiable Symbol Names to a Crash Report <!----> To navigate the symbols, press Up Arrow, Down Arrow, Left Arrow or Right Arrow <button data-v-354ee602="" tabindex="-1" aria-labelledby="-381414635" aria-expanded="false" aria-describedby="label--381414635 -67825086 label-parent--381414635" class="tree-toggle"><svg data-v-7f60a732="" data-v-354ee602="" aria-hidden="true" xmlns="http://www.w3.org/2000/svg" class="svg-icon inline-chevron-right-icon icon-inline chevron" viewBox="0 0 14 14"><path data-v-7f60a732="" d="m4.81347656 13.1269531c.22558594 0 .41015625-.0820312.56738282-.2324219l5.31835942-5.19531245c.1845703-.19140625.2802734-.38964844.2802734-.63574219 0-.23925781-.0888672-.45117187-.2802734-.62890625l-5.31835942-5.20214843c-.15722657-.15039063-.34179688-.23242188-.56738282-.23242188-.45800781 0-.81347656.35546875-.81347656.80664062 0 .21875.09570312.43066407.24609375.58789063l4.79199219 4.67578125-4.79199219 4.6621094c-.15722656.1640625-.24609375.3623047-.24609375.5878906 0 .4511719.35546875.8066406.81347656.8066406z"></path></svg></button> <svg data-v-7f60a732="" data-v-7334d1b4="" aria-hidden="true" xmlns="http://www.w3.org/2000/svg" class="svg-icon collection-icon icon-inline" viewBox="0 0 14 14"><title data-v-7f60a732="">Collection</title><g data-v-7f60a732="" transform="translate(2.116699, 4.455566)"><path data-v-7f60a732="" d="M-1.2412647-0.767793c0.4863523,0,0.8754342-0.3890819,0.8754342-0.8684863
c0-0.4863524-0.3890819-0.8754342-0.8754342-0.8754342S-2.116699-2.1226318-2.116699-1.6362793
C-2.116699-1.1568749-1.7276171-0.767793-1.2412647-0.767793z
M1.829703-1.0804482h9.490819
c0.3126545,0,0.5627785-0.2431761,0.5627785-0.5558312c0-0.319603-0.250124-0.5627792-0.5627785-0.5627792H1.829703
c-0.319603,0-0.5627792,0.2431762-0.5627792,0.5627792C1.2669238-1.3236243,1.5101-1.0804482,1.829703-1.0804482z
M-1.2412647,3.4356809c0.4863523,0,0.8754342-0.3890817,0.8754342-0.8754342s-0.3890819-0.8754343-0.8754342-0.8754343

S-2.116699,2.0738943-2.116699,2.5602467S-1.7276171,3.4356809-1.2412647,3.4356809z M1.829703,3.1230259h9.490819
c0.3126545,0,0.5627785-0.2501242,0.5627785-0.5627792s-0.250124-0.5558312-0.5627785-0.5558312H1.829703
c-0.319603,0-0.5627792,0.243176-0.5627792,0.5558312S1.5101,3.1230259,1.829703,3.1230259z M-1.2412647,7.6391549
c0.4863523,0,0.8754342-0.3960299,0.8754342-0.8754344c0-0.4863524-0.3890819-0.8754339-0.8754342-0.8754339
S-2.116699,6.2773681-2.116699,6.7637205C-2.116699,7.243125-1.7276171,7.6391549-1.2412647,7.6391549z M1.829703,7.3195519
h9.490819c0.3126545,0,0.5627785-0.2431765,0.5627785-0.5558314c0-0.319603-0.250124-0.5627789-0.5627785-0.5627789H1.829703
c-0.319603,0-0.5627792,0.243176-0.5627792,0.5627789C1.2669238,7.0763755,1.5101,7.3195519,1.829703,7.3195519z"></path></g></svg> , containing 10 symbols 5 of 11 symbols inside <a data-v-354ee602="" href="/documentation/xcode/identifying-the-cause-of-common-crashes" class="leaf-link" id="-381414635" tabindex="-1" aria-describedby="label--381414635 -67825086 label-parent--381414635 usage--381414635"> Identifying the Cause of Common Crashes <!----> To navigate the symbols, press Up Arrow, Down Arrow, Left Arrow or Right Arrow <!----> <svg data-v-7f60a732="" data-v-7334d1b4="" aria-hidden="true" xmlns="http://www.w3.org/2000/svg" class="svg-icon article-icon icon-inline" viewBox="0 0 14 14"><g data-v-7f60a732="" transform="translate(3.616699, 1.608398)"><path data-v-7f60a732="" d="M0.0136063,12.3984375H6.948308c1.3516788,0,2.0242538-0.6856346,2.0242538-2.0438433V4.4254899
c0-0.842351-0.0979481-1.2080226-0.6203365-1.7434704L4.7542777-0.9812267
C4.2580094-1.490555,3.8466287-1.6015625,3.1152854-1.6015625H0.0136063c-1.3451493,0-2.0242538,0.6921641-2.0242538,2.0503731
v9.9057837C-2.0106475,11.7193327-1.3380729,12.3984375,0.0136063,12.3984375z M0.0593152,11.3471317
c-0.6725746,0-1.0186567-0.3591423-1.0186567-1.0121269V0.4684002c0-0.6464552,0.346082-1.0186567,1.0251865-1.0186567h2.9057837

v3.7938433c0,0.8227613,0.4113805,1.2276118,1.227612,1.2276118h3.7220149v5.8638062
c0,0.6529846-0.3460822,1.0121269-1.0251865,1.0121269H0.0593152z M4.3167777,3.4851911

c-0.2611938,0-0.3591416-0.1044776-0.3591416-0.3656716v-3.4673507l3.761194,3.8330224H4.3167777z M5.8839421,6.2734375H0.9277854
c-0.2350746,0-0.4113806,0.1763058-0.4113806,0.3983207c0,0.2285452,0.176306,0.404851,0.4113806,0.404851h4.9561567
c0.2285447,0,0.3983207-0.1763058,0.3983207-0.404851C6.2822628,6.4497433,6.1124868,6.2734375,5.8839421,6.2734375z
M5.8839421,8.5523558H0.9277854c-0.2350746,0-0.4113806,0.1828356-0.4113806,0.4113798

c0,0.2220154,0.176306,0.3917913,0.4113806,0.3917913h4.9561567c0.2285447,0,0.3983207-0.169776,0.3983207-0.3917913

C6.2822628,8.7351913,6.1124868,8.5523558,5.8839421,8.5523558z"></path></g></svg> <!----> 6 of 11 symbols inside <a data-v-354ee602="" href="/documentation/xcode/analyzing-a-crash-report" class="leaf-link" id="-562898634" tabindex="-1" aria-describedby="label--562898634 -67825086 usage--562898634"> Analyzing a Crash Report <!----> To navigate the symbols, press Up Arrow, Down Arrow, Left Arrow or Right Arrow <!----> <svg data-v-7f60a732="" data-v-7334d1b4="" aria-hidden="true" xmlns="http://www.w3.org/2000/svg" class="svg-icon article-icon icon-inline" viewBox="0 0 14 14"><g data-v-7f60a732="" transform="translate(3.616699, 1.608398)"><path data-v-7f60a732="" d="M0.0136063,12.3984375H6.948308c1.3516788,0,2.0242538-0.6856346,2.0242538-2.0438433V4.4254899
c0-0.842351-0.0979481-1.2080226-0.6203365-1.7434704L4.7542777-0.9812267
C4.2580094-1.490555,3.8466287-1.6015625,3.1152854-1.6015625H0.0136063c-1.3451493,0-2.0242538,0.6921641-2.0242538,2.0503731
v9.9057837C-2.0106475,11.7193327-1.3380729,12.3984375,0.0136063,12.3984375z M0.0593152,11.3471317
c-0.6725746,0-1.0186567-0.3591423-1.0186567-1.0121269V0.4684002c0-0.6464552,0.346082-1.0186567,1.0251865-1.0186567h2.9057837

v3.7938433c0,0.8227613,0.4113805,1.2276118,1.227612,1.2276118h3.7220149v5.8638062
c0,0.6529846-0.3460822,1.0121269-1.0251865,1.0121269H0.0593152z M4.3167777,3.4851911
c-0.2611938,0-0.3591416-0.1044776-0.3591416-0.3656716v-3.4673507l3.761194,3.8330224H4.3167777z M5.8839421,6.2734375H0.9277854

c-0.2350746,0-0.4113806,0.1763058-
0.4113806,0.3983207c0,0.2285452,0.176306,0.404851,0.4113806,0.404851h4.
9561567
c0.2285447,0,0.3983207-0.1763058,0.3983207-
0.404851C6.2822628,6.4497433,6.1124868,6.2734375,5.8839421,6.2734375z
M5.8839421,8.5523558H0.9277854c-0.2350746,0-0.4113806,0.1828356-
0.4113806,0.4113798

c0,0.2220154,0.176306,0.3917913,0.4113806,0.3917913h4.9561567c0.228544
7,0,0.3983207-0.169776,0.3983207-0.3917913

C6.2822628,8.7351913,6.1124868,8.5523558,5.8839421,8.5523558z"></path>
</g></svg> <!----
> 7 of 11
symbols inside <a data-v-354ee602=""
href="/documentation/xcode/examining-the-fields-in-a-crash-report" class="leaf-
link" id="-1776454030" tabindex="-1" aria-describedby="label--1776454030 -
67825086 usage--1776454030"><p data-v-53c78ce5="" data-v-354ee602=""
class="highlight">Examining the Fields in a Crash
Report</p><!----> <div class="vue-recycle-
scroller__item-view" style="transform: translateY(-9999px);"><div data-v-
354ee602="" data-v-3769e00e="" id="container-1707101309"
class="navigator-card-item" style="--nesting-index: 1;" aria-hidden="true"><div
data-v-354ee602="" class="head-wrapper"><span data-v-354ee602=""
hidden="hidden" id="usage-1707101309"> To navigate the symbols, press Up
Arrow, Down Arrow, Left Arrow or Right Arrow <div data-v-354ee602=""
class="depth-spacer"><!----> <div data-v-7334d1b4="" data-v-
354ee602="" class="NavigatorLeafIcon navigator-icon"><svg data-v-
7f60a732="" data-v-7334d1b4="" aria-hidden="true"
xmlns="http://www.w3.org/2000/svg" class="svg-icon article-icon icon-inline"
viewBox="0 0 14 14"><g data-v-7f60a732="" transform="translate(3.616699,
1.608398)"><path data-v-7f60a732=""
d="M0.0136063,12.3984375H6.948308c1.3516788,0,2.0242538-
0.6856346,2.0242538-2.0438433V4.4254899
c0-0.842351-0.0979481-1.2080226-0.6203365-1.7434704L4.7542777-
0.9812267
C4.2580094-1.490555,3.8466287-1.6015625,3.1152854-
1.6015625H0.0136063c-1.3451493,0-2.0242538,0.6921641-
2.0242538,2.0503731
v9.9057837C-2.0106475,11.7193327-
1.3380729,12.3984375,0.0136063,12.3984375z M0.0593152,11.3471317
c-0.6725746,0-1.0186567-0.3591423-1.0186567-1.0121269V0.4684002c0-
0.6464552,0.346082-1.0186567,1.0251865-1.0186567h2.9057837

v3.7938433c0,0.8227613,0.4113805,1.2276118,1.227612,1.2276118h3.722014
9v5.8638062
c0,0.6529846-0.3460822,1.0121269-1.0251865,1.0121269H0.0593152z
M4.3167777,3.4851911
c-0.2611938,0-0.3591416-0.1044776-0.3591416-0.3656716v-
3.4673507l3.761194,3.8330224H4.3167777z
M5.8839421,6.2734375H0.9277854
c-0.2350746,0-0.4113806,0.1763058-
0.4113806,0.3983207c0,0.2285452,0.176306,0.404851,0.4113806,0.404851h4.
9561567

c0.2285447,0,0.3983207-0.1763058,0.3983207-0.404851C6.2822628,6.4497433,6.1124868,6.2734375,5.8839421,6.2734375z M5.8839421,8.5523558H0.9277854c-0.2350746,0-0.4113806,0.1828356-0.4113806,0.4113798

c0,0.2220154,0.176306,0.3917913,0.4113806,0.3917913h4.9561567c0.2285447,0,0.3983207-0.169776,0.3983207-0.3917913

C6.2822628,8.7351913,6.1124868,8.5523558,5.8839421,8.5523558z"></path></g></svg> <!----> 8 of 11 symbols inside <a data-v-354ee602="" href="/documentation/xcode/understanding-the-exception-types-in-a-crash-report" class="leaf-link" id="1707101309" tabindex="-1" aria-describedby="label-1707101309 -67825086 usage-1707101309"> Understanding the Exception Types in a Crash Report <!----> To navigate the symbols, press Up Arrow, Down Arrow, Left Arrow or Right Arrow <!----> <!----> <!----> 9 of 11 symbols inside <h3 data-v-354ee602="" id="-82741711" tabindex="-1" aria-describedby="label--82741711 -67825086 usage--82741711" class="leaf-link"> Device Logs </h3><!----> To navigate the symbols, press Up Arrow, Down Arrow, Left Arrow or Right Arrow <!----> <svg data-v-7f60a732="" data-v-7334d1b4="" aria-hidden="true" xmlns="http://www.w3.org/2000/svg" class="svg-icon article-icon icon-inline" viewBox="0 0 14 14"><g data-v-7f60a732="" transform="translate(3.616699, 1.608398)"><path data-v-7f60a732="" d="M0.0136063,12.3984375H6.948308c1.3516788,0,2.0242538-0.6856346,2.0242538-2.0438433V4.4254899 c0-0.842351-0.0979481-1.2080226-0.6203365-1.7434704L4.7542777-0.9812267 C4.2580094-1.490555,3.8466287-1.6015625,3.1152854-1.6015625H0.0136063c-1.3451493,0-2.0242538,0.6921641-2.0242538,2.0503731 v9.9057837C-2.0106475,11.7193327-1.3380729,12.3984375,0.0136063,12.3984375z M0.0593152,11.3471317 c-0.6725746,0-1.0186567-0.3591423-1.0186567-1.0121269V0.4684002c0-0.6464552,0.346082-1.0186567,1.0251865-1.0186567h2.9057837

v3.7938433c0,0.8227613,0.4113805,1.2276118,1.227612,1.2276118h3.7220149v5.8638062
c0,0.6529846-0.3460822,1.0121269-1.0251865,1.0121269H0.0593152z
M4.3167777,3.4851911
c-0.2611938,0-0.3591416-0.1044776-0.3591416-0.3656716v-3.4673507l3.761194,3.8330224H4.3167777z
M5.8839421,6.2734375H0.9277854
c-0.2350746,0-0.4113806,0.1763058-0.4113806,0.3983207c0,0.2285452,0.176306,0.404851,0.4113806,0.404851h4.9561567
c0.2285447,0,0.3983207-0.1763058,0.3983207-0.404851C6.2822628,6.4497433,6.1124868,6.2734375,5.8839421,6.2734375z
M5.8839421,8.5523558H0.9277854c-0.2350746,0-0.4113806,0.1828356-0.4113806,0.4113798

c0,0.2220154,0.176306,0.3917913,0.4113806,0.3917913h4.9561567c0.2285447,0,0.3983207-0.169776,0.3983207-0.3917913

C6.2822628,8.7351913,6.1124868,8.5523558,5.8839421,8.5523558z"></path></g></svg> <!----> 10 of 11 symbols inside <a data-v-354ee602="" href="/documentation/xcode/identifying-high-memory-use-with-jetsam-event-reports" class="leaf-link" id="-1273217866" tabindex="-1" aria-describedby="label--1273217866 -67825086 usage--1273217866"> Identifying High-Memory Use with Jetsam Event Reports <!----> To navigate the symbols, press Up Arrow, Down Arrow, Left Arrow or Right Arrow <!----> <svg data-v-7f60a732="" data-v-7334d1b4="" aria-hidden="true" xmlns="http://www.w3.org/2000/svg" class="svg-icon collection-icon icon-inline" viewBox="0 0 14 14"><title data-v-7f60a732="">Collection</title><g data-v-7f60a732="" transform="translate(2.116699, 4.455566)"><path data-v-7f60a732="" d="M-1.2412647-0.767793c0.4863523,0,0.8754342-0.3890819,0.8754342-0.8684863
c0-0.4863524-0.3890819-0.8754342-0.8754342-0.8754342S-2.116699-2.1226318-2.116699-1.6362793
C-2.116699-1.1568749-1.7276171-0.767793-1.2412647-0.767793z
M1.829703-1.0804482h9.490819
c0.3126545,0,0.5627785-0.2431761,0.5627785-0.5558312c0-0.319603-0.250124-0.5627792-0.5627785-0.5627792H1.829703
c-0.319603,0-0.5627792,0.2431762-0.5627792,0.5627792C1.2669238-1.3236243,1.5101-1.0804482,1.829703-1.0804482z
M-1.2412647,3.4356809c0.4863523,0,0.8754342-0.3890817,0.8754342-0.8754342s-0.3890819-0.8754343-0.8754342-0.8754343
S-2.116699,2.0738943-2.116699,2.5602467S-1.7276171,3.4356809-1.2412647,3.4356809z M1.829703,3.1230259h9.490819

c0.3126545,0,0.5627785-0.2501242,0.5627785-0.5627792s-0.250124-0.5558312-0.5627785-0.5558312H1.829703
c-0.319603,0-0.5627792,0.243176-0.5627792,0.5558312S1.5101,3.1230259,1.829703,3.1230259z M-1.2412647,7.6391549
c0.4863523,0,0.8754342-0.3960299,0.8754342-0.8754344c0-0.4863524-0.3890819-0.8754339-0.8754342-0.8754339
S-2.116699,6.2773681-2.116699,6.7637205C-2.116699,7.243125-1.7276171,7.6391549-1.2412647,7.6391549z M1.829703,7.3195519
h9.490819c0.3126545,0,0.5627785-0.2431765,0.5627785-0.5558314c0-0.319603-0.250124-0.5627789-0.5627785-0.5627789H1.829703
c-0.319603,0-0.5627792,0.243176-0.5627792,0.5627789C1.2669238,7.0763755,1.5101,7.3195519,1.829703,7.3195519z"></path></g></svg> <!----> 11 of 11 symbols inside <a data-v-354ee602="" href="/documentation/os/logging" class="leaf-link" id="-965392962" tabindex="-1" aria-describedby="label--965392962 -67825086 usage--965392962"> Logging <!----> To navigate the symbols, press Up Arrow, Down Arrow, Left Arrow or Right Arrow <!----> <!----> <!----> 38 of 74 symbols inside <h3 data-v-354ee602="" id="-1788968339" tabindex="-1" aria-describedby="label--1788968339 <root> usage--1788968339" class="leaf-link"> Testing </h3><!----> To navigate the symbols, press Up Arrow, Down Arrow, Left Arrow or Right Arrow <!----> <svg data-v-7f60a732="" data-v-7334d1b4="" aria-hidden="true" xmlns="http://www.w3.org/2000/svg" class="svg-icon article-icon icon-inline" viewBox="0 0 14 14"><g data-v-7f60a732="" transform="translate(3.616699, 1.608398)"><path data-v-7f60a732="" d="M0.0136063,12.3984375H6.948308c1.3516788,0,2.0242538-0.6856346,2.0242538-2.0438433V4.4254899
c0-0.842351-0.0979481-1.2080226-0.6203365-1.7434704L4.7542777-0.9812267
C4.2580094-1.490555,3.8466287-1.6015625,3.1152854-1.6015625H0.0136063c-1.3451493,0-2.0242538,0.6921641-2.0242538,2.0503731
v9.9057837C-2.0106475,11.7193327-1.3380729,12.3984375,0.0136063,12.3984375z M0.0593152,11.3471317

c-0.6725746,0-1.0186567-0.3591423-1.0186567-1.0121269V0.4684002c0-0.6464552,0.346082-1.0186567,1.0251865-1.0186567h2.9057837

v3.7938433c0,0.8227613,0.4113805,1.2276118,1.227612,1.2276118h3.7220149v5.8638062
c0,0.6529846-0.3460822,1.0121269-1.0251865,1.0121269H0.0593152z M4.3167777,3.4851911
c-0.2611938,0-0.3591416-0.1044776-0.3591416-0.3656716v-3.4673507l3.761194,3.8330224H4.3167777z M5.8839421,6.2734375H0.9277854
c-0.2350746,0-0.4113806,0.1763058-0.4113806,0.3983207c0,0.2285452,0.176306,0.404851,0.4113806,0.404851h4.9561567
c0.2285447,0,0.3983207-0.1763058,0.3983207-0.404851C6.2822628,6.4497433,6.1124868,6.2734375,5.8839421,6.2734375z
M5.8839421,8.5523558H0.9277854c-0.2350746,0-0.4113806,0.1828356-0.4113806,0.4113798

c0,0.2220154,0.176306,0.3917913,0.4113806,0.3917913h4.9561567c0.2285447,0,0.3983207-0.169776,0.3983207-0.3917913

C6.2822628,8.7351913,6.1124868,8.5523558,5.8839421,8.5523558z"></path></g></svg> <!----> 39 of 74 symbols inside <a data-v-354ee602="" href="/documentation/xcode/testing-your-apps-in-xcode" class="leaf-link" id="-97619179" tabindex="-1" aria-describedby="label--97619179 <root> usage--97619179"> Testing Your Apps in Xcode <!----> To navigate the symbols, press Up Arrow, Down Arrow, Left Arrow or Right Arrow <!----> <svg data-v-7f60a732="" data-v-7334d1b4="" aria-hidden="true" xmlns="http://www.w3.org/2000/svg" class="svg-icon article-icon icon-inline" viewBox="0 0 14 14"><g data-v-7f60a732="" transform="translate(3.616699, 1.608398)"><path data-v-7f60a732="" d="M0.0136063,12.3984375H6.948308c1.3516788,0,2.0242538-0.6856346,2.0242538-2.0438433V4.4254899
c0-0.842351-0.0979481-1.2080226-0.6203365-1.7434704L4.7542777-0.9812267
C4.2580094-1.490555,3.8466287-1.6015625,3.1152854-1.6015625H0.0136063c-1.3451493,0-2.0242538,0.6921641-2.0242538,2.0503731
v9.9057837C-2.0106475,11.7193327-1.3380729,12.3984375,0.0136063,12.3984375z M0.0593152,11.3471317
c-0.6725746,0-1.0186567-0.3591423-1.0186567-1.0121269V0.4684002c0-0.6464552,0.346082-1.0186567,1.0251865-1.0186567h2.9057837

v3.7938433c0,0.8227613,0.4113805,1.2276118,1.227612,1.2276118h3.7220149v5.8638062
c0,0.6529846-0.3460822,1.0121269-1.0251865,1.0121269H0.0593152z
M4.3167777,3.4851911
c-0.2611938,0-0.3591416-0.1044776-0.3591416-0.3656716v-3.4673507l3.761194,3.8330224H4.3167777z
M5.8839421,6.2734375H0.9277854
c-0.2350746,0-0.4113806,0.1763058-0.4113806,0.3983207c0,0.2285452,0.176306,0.404851,0.4113806,0.404851h4.9561567
c0.2285447,0,0.3983207-0.1763058,0.3983207-0.404851C6.2822628,6.4497433,6.1124868,6.2734375,5.8839421,6.2734375z
M5.8839421,8.5523558H0.9277854c-0.2350746,0-0.4113806,0.1828356-0.4113806,0.4113798

c0,0.2220154,0.176306,0.3917913,0.4113806,0.3917913h4.9561567c0.2285447,0,0.3983207-0.169776,0.3983207-0.3917913

C6.2822628,8.7351913,6.1124868,8.5523558,5.8839421,8.5523558z"></path></g></svg> <!----> 40 of 74 symbols inside <a data-v-354ee602="" href="/documentation/xcode/adding-unit-tests-to-your-existing-project" class="leaf-link" id="-1228936215" tabindex="-1" aria-describedby="label--1228936215 <root> usage--1228936215"> Adding Unit Tests to Your Existing Project <!----> To navigate the symbols, press Up Arrow, Down Arrow, Left Arrow or Right Arrow <!----> <svg data-v-7f60a732="" data-v-7334d1b4="" aria-hidden="true" xmlns="http://www.w3.org/2000/svg" class="svg-icon article-icon icon-inline" viewBox="0 0 14 14"><g data-v-7f60a732="" transform="translate(3.616699, 1.608398)"><path data-v-7f60a732="" d="M0.0136063,12.3984375H6.948308c1.3516788,0,2.0242538-0.6856346,2.0242538-2.0438433V4.4254899
c0-0.842351-0.0979481-1.2080226-0.6203365-1.7434704L4.7542777-0.9812267
C4.2580094-1.490555,3.8466287-1.6015625,3.1152854-1.6015625H0.0136063c-1.3451493,0-2.0242538,0.6921641-2.0242538,2.0503731
v9.9057837C-2.0106475,11.7193327-1.3380729,12.3984375,0.0136063,12.3984375z M0.0593152,11.3471317
c-0.6725746,0-1.0186567-0.3591423-1.0186567-1.0121269V0.4684002c0-0.6464552,0.346082-1.0186567,1.0251865-1.0186567h2.9057837

v3.7938433c0,0.8227613,0.4113805,1.2276118,1.227612,1.2276118h3.7220149v5.8638062

c0,0.6529846-0.3460822,1.0121269-1.0251865,1.0121269H0.0593152z
M4.3167777,3.4851911
c-0.2611938,0-0.3591416-0.1044776-0.3591416-0.3656716v-
3.4673507l3.761194,3.8330224H4.3167777z
M5.8839421,6.2734375H0.9277854
c-0.2350746,0-0.4113806,0.1763058-
0.4113806,0.3983207c0,0.2285452,0.176306,0.404851,0.4113806,0.404851h4.
9561567
c0.2285447,0,0.3983207-0.1763058,0.3983207-
0.404851C6.2822628,6.4497433,6.1124868,6.2734375,5.8839421,6.2734375z
M5.8839421,8.5523558H0.9277854c-0.2350746,0-0.4113806,0.1828356-
0.4113806,0.4113798

c0,0.2220154,0.176306,0.3917913,0.4113806,0.3917913h4.9561567c0.228544
7,0,0.3983207-0.169776,0.3983207-0.3917913

C6.2822628,8.7351913,6.1124868,8.5523558,5.8839421,8.5523558z"></path>
</g></svg> <!----
> 41 of 74
symbols inside <a data-v-354ee602=""
href="/documentation/xcode/setting-up-storekit-testing-in-xcode" class="leaf-
link" id="134735530" tabindex="-1" aria-describedby="label-134735530 <root>
usage-134735530"><p data-v-53c78ce5="" data-v-354ee602=""
class="highlight">Setting Up StoreKit Testing in
Xcode</p><!----> <div class="vue-recycle-
scroller__item-view" style="transform: translateY(-9999px);"><div data-v-
354ee602="" data-v-3769e00e="" id="container--1788968314"
class="navigator-card-item" style="--nesting-index: 0;" aria-hidden="true"><div
data-v-354ee602="" class="head-wrapper is-group"><span data-v-
354ee602="" hidden="hidden" id="usage--1788968314"> To navigate the
symbols, press Up Arrow, Down Arrow, Left Arrow or Right Arrow <div
data-v-354ee602="" class="depth-spacer"><!----> <!----><div data-v-
354ee602="" class="title-container"><!----><span data-v-354ee602=""
id="label--1788968314" hidden="hidden"> 42 of 74 symbols inside <h3
data-v-354ee602="" id="-1788968314" tabindex="-1" aria-describedby="label--
1788968314 <root> usage--1788968314" class="leaf-link"><p data-v-
53c78ce5="" data-v-354ee602="" class="highlight">Continuous Integration and
Delivery</p></h3><!----> <div class="vue-recycle-
scroller__item-view" style="transform: translateY(-9999px);"><div data-v-
354ee602="" data-v-3769e00e="" id="container-1942067906"
class="navigator-card-item" style="--nesting-index: 0;" aria-hidden="true"><div
data-v-354ee602="" class="head-wrapper"><span data-v-354ee602=""
hidden="hidden" id="usage-1942067906"> To navigate the symbols, press Up
Arrow, Down Arrow, Left Arrow or Right Arrow <div data-v-354ee602=""
class="depth-spacer"><button data-v-354ee602="" tabindex="-1" aria-
labelledby="1942067906" aria-expanded="false" aria-describedby="label-
1942067906 <root> label-parent-1942067906" class="tree-toggle"><svg data-
v-7f60a732="" data-v-354ee602="" aria-hidden="true"
xmlns="http://www.w3.org/2000/svg" class="svg-icon inline-chevron-right-icon
icon-inline chevron" viewBox="0 0 14 14"><path data-v-7f60a732=""
d="m4.81347656 13.1269531c.22558594
0 .41015625-.0820312.56738282-.2324219l5.31835942-
5.19531245c.1845703-.19140625.2802734-.38964844.2802734-.63574219
0-.23925781-.0888672-.45117187-.2802734-.62890625l-5.31835942-

5.20214843c-.15722657-.15039063-.34179688-.23242188-.56738282-.23242188-.45800781 0-.81347656.35546875-.81347656.80664062 0 .21875.09570312.43066407.24609375.58789063l4.79199219 4.67578125-4.79199219 4.6621094c-.15722656.1640625-.24609375.3623047-.24609375.5878906 0 .4511719.35546875.8066406.81347656.8066406z"></path></svg></button> <svg data-v-7f60a732="" data-v-7334d1b4="" aria-hidden="true" xmlns="http://www.w3.org/2000/svg" class="svg-icon collection-icon icon-inline" viewBox="0 0 14 14"><title data-v-7f60a732="">Collection</title><g data-v-7f60a732="" transform="translate(2.116699, 4.455566)"><path data-v-7f60a732="" d="M-1.2412647-0.767793c0.4863523,0,0.8754342-0.3890819,0.8754342-0.8684863 c0-0.4863524-0.3890819-0.8754342-0.8754342-0.8754342S-2.116699-2.1226318-2.116699-1.6362793 C-2.116699-1.1568749-1.7276171-0.767793-1.2412647-0.767793z M1.829703-1.0804482h9.490819 c0.3126545,0,0.5627785-0.2431761,0.5627785-0.5558312c0-0.319603-0.250124-0.5627792-0.5627785-0.5627792H1.829703 c-0.319603,0-0.5627792,0.2431762-0.5627792,0.5627792C1.2669238-1.3236243,1.5101-1.0804482,1.829703-1.0804482z M-1.2412647,3.4356809c0.4863523,0,0.8754342-0.3890817,0.8754342-0.8754342s-0.3890819-0.8754343-0.8754342-0.8754343 S-2.116699,2.0738943-2.116699,2.5602467S-1.7276171,3.4356809-1.2412647,3.4356809z M1.829703,3.1230259h9.490819 c0.3126545,0,0.5627785-0.2501242,0.5627785-0.5627792s-0.250124-0.5558312-0.5627785-0.5558312H1.829703 c-0.319603,0-0.5627792,0.243176-0.5627792,0.5558312S1.5101,3.1230259,1.829703,3.1230259z M-1.2412647,7.6391549 c0.4863523,0,0.8754342-0.3960299,0.8754342-0.8754344c0-0.4863524-0.3890819-0.8754339-0.8754342-0.8754339 S-2.116699,6.2773681-2.116699,6.7637205C-2.116699,7.243125-1.7276171,7.6391549-1.2412647,7.6391549z M1.829703,7.3195519 h9.490819c0.3126545,0,0.5627785-0.2431765,0.5627785-0.5558314c0-0.319603-0.250124-0.5627789-0.5627785-0.5627789H1.829703 c-0.319603,0-0.5627792,0.243176-0.5627792,0.5627789C1.2669238,7.0763755,1.5101,7.3195519,1.829703,7.3195519z"></path></g></svg> , containing 29 symbols 43 of 74 symbols inside <a data-v-354ee602="" href="/documentation/xcode/xcode-cloud" class="leaf-link" id="1942067906" tabindex="-1" aria-describedby="label-1942067906 <root> label-parent-1942067906 usage-1942067906"> Xcode Cloud <!----> To navigate the symbols, press Up Arrow, Down Arrow, Left Arrow or Right Arrow <div

data-v-354ee602="" class="depth-spacer"><!----> <!----> <!----> 44 of 74 symbols inside <h3 data-v-354ee602="" id="-1788968312" tabindex="-1" aria-describedby="label--1788968312 <root> usage--1788968312" class="leaf-link"> Distribution </h3><!----> To navigate the symbols, press Up Arrow, Down Arrow, Left Arrow or Right Arrow <!----> <svg data-v-7f60a732="" data-v-7334d1b4="" aria-hidden="true" xmlns="http://www.w3.org/2000/svg" class="svg-icon article-icon icon-inline" viewBox="0 0 14 14"><g data-v-7f60a732="" transform="translate(3.616699, 1.608398)"><path data-v-7f60a732="" d="M0.0136063,12.3984375H6.948308c1.3516788,0,2.0242538-0.6856346,2.0242538-2.0438433V4.4254899
c0-0.842351-0.0979481-1.2080226-0.6203365-1.7434704L4.7542777-0.9812267
C4.2580094-1.490555,3.8466287-1.6015625,3.1152854-1.6015625H0.0136063c-1.3451493,0-2.0242538,0.6921641-2.0242538,2.0503731
v9.9057837C-2.0106475,11.7193327-1.3380729,12.3984375,0.0136063,12.3984375z M0.0593152,11.3471317
c-0.6725746,0-1.0186567-0.3591423-1.0186567-1.0121269V0.4684002c0-0.6464552,0.346082-1.0186567,1.0251865-1.0186567h2.9057837

v3.7938433c0,0.8227613,0.4113805,1.2276118,1.227612,1.2276118h3.7220149v5.8638062
c0,0.6529846-0.3460822,1.0121269-1.0251865,1.0121269H0.0593152z M4.3167777,3.4851911
c-0.2611938,0-0.3591416-0.1044776-0.3591416-0.3656716v-3.4673507l3.761194,3.8330224H4.3167777z M5.8839421,6.2734375H0.9277854
c-0.2350746,0-0.4113806,0.1763058-0.4113806,0.3983207c0,0.2285452,0.176306,0.404851,0.4113806,0.404851h4.9561567
c0.2285447,0,0.3983207-0.1763058,0.3983207-0.404851C6.2822628,6.4497433,6.1124868,6.2734375,5.8839421,6.2734375z
M5.8839421,8.5523558H0.9277854c-0.2350746,0-0.4113806,0.1828356-0.4113806,0.4113798

c0,0.2220154,0.176306,0.3917913,0.4113806,0.3917913h4.9561567c0.2285447,0,0.3983207-0.169776,0.3983207-0.3917913

C6.2822628,8.7351913,6.1124868,8.5523558,5.8839421,8.5523558z"></path></g></svg> <!----> 45 of 74 symbols inside <a data-v-354ee602="" href="/documentation/xcode/preparing-your-app-for-distribution" class="leaf-

link" id="1259551116" tabindex="-1" aria-describedby="label-1259551116 <root> usage-1259551116"> Preparing Your App for Distribution <!----> To navigate the symbols, press Up Arrow, Down Arrow, Left Arrow or Right Arrow <!----> <svg data-v-7f60a732="" data-v-7334d1b4="" aria-hidden="true" xmlns="http://www.w3.org/2000/svg" class="svg-icon article-icon icon-inline" viewBox="0 0 14 14"><g data-v-7f60a732="" transform="translate(3.616699, 1.608398)"><path data-v-7f60a732="" d="M0.0136063,12.3984375H6.948308c1.3516788,0,2.0242538-0.6856346,2.0242538-2.0438433V4.4254899
c0-0.842351-0.0979481-1.2080226-0.6203365-1.7434704L4.7542777-0.9812267
C4.2580094-1.490555,3.8466287-1.6015625,3.1152854-1.6015625H0.0136063c-1.3451493,0-2.0242538,0.6921641-2.0242538,2.0503731
v9.9057837C-2.0106475,11.7193327-1.3380729,12.3984375,0.0136063,12.3984375z M0.0593152,11.3471317
c-0.6725746,0-1.0186567-0.3591423-1.0186567-1.0121269V0.4684002c0-0.6464552,0.346082-1.0186567,1.0251865-1.0186567h2.9057837

v3.7938433c0,0.8227613,0.4113805,1.2276118,1.227612,1.2276118h3.7220149v5.8638062
c0,0.6529846-0.3460822,1.0121269-1.0251865,1.0121269H0.0593152z M4.3167777,3.4851911
c-0.2611938,0-0.3591416-0.1044776-0.3591416-0.3656716v-3.4673507l3.761194,3.8330224H4.3167777z M5.8839421,6.2734375H0.9277854
c-0.2350746,0-0.4113806,0.1763058-0.4113806,0.3983207c0,0.2285452,0.176306,0.404851,0.4113806,0.404851h4.9561567
c0.2285447,0,0.3983207-0.1763058,0.3983207-0.404851C6.2822628,6.4497433,6.1124868,6.2734375,5.8839421,6.2734375z
M5.8839421,8.5523558H0.9277854c-0.2350746,0-0.4113806,0.1828356-0.4113806,0.4113798

c0,0.2220154,0.176306,0.3917913,0.4113806,0.3917913h4.9561567c0.2285447,0,0.3983207-0.169776,0.3983207-0.3917913

C6.2822628,8.7351913,6.1124868,8.5523558,5.8839421,8.5523558z"></path></g></svg> <!----> 46 of 74 symbols inside <a data-v-354ee602="" href="/documentation/security/notarizing_macos_software_before_distribution" class="leaf-link" id="-631267973" tabindex="-1" aria-describedby="label--631267973 <root> usage--631267973"> Notarizing macOS software before

distribution <!----> To navigate the symbols, press Up Arrow, Down Arrow, Left Arrow or Right Arrow <!----> <svg data-v-7f60a732="" data-v-7334d1b4="" aria-hidden="true" xmlns="http://www.w3.org/2000/svg" class="svg-icon article-icon icon-inline" viewBox="0 0 14 14"><g data-v-7f60a732="" transform="translate(3.616699, 1.608398)"><path data-v-7f60a732="" d="M0.0136063,12.3984375H6.948308c1.3516788,0,2.0242538-0.6856346,2.0242538-2.0438433V4.4254899
c0-0.842351-0.0979481-1.2080226-0.6203365-1.7434704L4.7542777-0.9812267
C4.2580094-1.490555,3.8466287-1.6015625,3.1152854-1.6015625H0.0136063c-1.3451493,0-2.0242538,0.6921641-2.0242538,2.0503731
v9.9057837C-2.0106475,11.7193327-1.3380729,12.3984375,0.0136063,12.3984375z M0.0593152,11.3471317
c-0.6725746,0-1.0186567-0.3591423-1.0186567-1.0121269V0.4684002c0-0.6464552,0.346082-1.0186567,1.0251865-1.0186567h2.9057837

v3.7938433c0,0.8227613,0.4113805,1.2276118,1.227612,1.2276118h3.7220149v5.8638062
c0,0.6529846-0.3460822,1.0121269-1.0251865,1.0121269H0.0593152z M4.3167777,3.4851911
c-0.2611938,0-0.3591416-0.1044776-0.3591416-0.3656716v-3.4673507l3.761194,3.8330224H4.3167777z M5.8839421,6.2734375H0.9277854
c-0.2350746,0-0.4113806,0.1763058-0.4113806,0.3983207c0,0.2285452,0.176306,0.404851,0.4113806,0.404851h4.9561567
c0.2285447,0,0.3983207-0.1763058,0.3983207-0.404851C6.2822628,6.4497433,6.1124868,6.2734375,5.8839421,6.2734375z
M5.8839421,8.5523558H0.9277854c-0.2350746,0-0.4113806,0.1828356-0.4113806,0.4113798

c0,0.2220154,0.176306,0.3917913,0.4113806,0.3917913h4.9561567c0.2285447,0,0.3983207-0.169776,0.3983207-0.3917913

C6.2822628,8.7351913,6.1124868,8.5523558,5.8839421,8.5523558z"></path></g></svg> <!----> 47 of 74 symbols inside <a data-v-354ee602="" href="/documentation/xcode/distributing-your-app-for-beta-testing-and-releases" class="leaf-link" id="-1535883342" tabindex="-1" aria-describedby="label--1535883342 <root> usage--1535883342"> Distributing Your App for Beta Testing and Releases <!----> <div data-v-354ee602="" data-v-3769e00e="" id="container--2017702681"

class="navigator-card-item" style="--nesting-index: 0;" aria-hidden="true"> To navigate the symbols, press Up Arrow, Down Arrow, Left Arrow or Right Arrow <!----> <svg data-v-7f60a732="" data-v-7334d1b4="" aria-hidden="true" xmlns="http://www.w3.org/2000/svg" class="svg-icon article-icon icon-inline" viewBox="0 0 14 14"><g data-v-7f60a732="" transform="translate(3.616699, 1.608398)"><path data-v-7f60a732="" d="M0.0136063,12.3984375H6.948308c1.3516788,0,2.0242538-0.6856346,2.0242538-2.0438433V4.4254899
c0-0.842351-0.0979481-1.2080226-0.6203365-1.7434704L4.7542777-0.9812267
C4.2580094-1.490555,3.8466287-1.6015625,3.1152854-1.6015625H0.0136063c-1.3451493,0-2.0242538,0.6921641-2.0242538,2.0503731
v9.9057837C-2.0106475,11.7193327-1.3380729,12.3984375,0.0136063,12.3984375z M0.0593152,11.3471317
c-0.6725746,0-1.0186567-0.3591423-1.0186567-1.0121269V0.4684002c0-0.6464552,0.346082-1.0186567,1.0251865-1.0186567h2.9057837

v3.7938433c0,0.8227613,0.4113805,1.2276118,1.227612,1.2276118h3.7220149v5.8638062
c0,0.6529846-0.3460822,1.0121269-1.0251865,1.0121269H0.0593152z M4.3167777,3.4851911
c-0.2611938,0-0.3591416-0.1044776-0.3591416-0.3656716v-3.4673507l3.761194,3.8330224H4.3167777z M5.8839421,6.2734375H0.9277854
c-0.2350746,0-0.4113806,0.1763058-0.4113806,0.3983207c0,0.2285452,0.176306,0.404851,0.4113806,0.404851h4.9561567
c0.2285447,0,0.3983207-0.1763058,0.3983207-0.404851C6.2822628,6.4497433,6.1124868,6.2734375,5.8839421,6.2734375z
M5.8839421,8.5523558H0.9277854c-0.2350746,0-0.4113806,0.1828356-0.4113806,0.4113798

c0,0.2220154,0.176306,0.3917913,0.4113806,0.3917913h4.9561567c0.2285447,0,0.3983207-0.169776,0.3983207-0.3917913

C6.2822628,8.7351913,6.1124868,8.5523558,5.8839421,8.5523558z"></path></g></svg> <!----> 48 of 74 symbols inside <a data-v-354ee602="" href="/documentation/xcode/distributing-your-app-to-registered-devices" class="leaf-link" id="-2017702681" tabindex="-1" aria-describedby="label--2017702681 <root> usage--2017702681"> Distributing Your App to Registered Devices <!----> To navigate the symbols, press Up

Arrow, Down Arrow, Left Arrow or Right Arrow <!----> <svg data-v-7f60a732="" data-v-7334d1b4="" aria-hidden="true" xmlns="http://www.w3.org/2000/svg" class="svg-icon article-icon icon-inline" viewBox="0 0 14 14"><g data-v-7f60a732="" transform="translate(3.616699, 1.608398)"><path data-v-7f60a732="" d="M0.0136063,12.3984375H6.948308c1.3516788,0,2.0242538-0.6856346,2.0242538-2.0438433V4.4254899
c0-0.842351-0.0979481-1.2080226-0.6203365-1.7434704L4.7542777-0.9812267
C4.2580094-1.490555,3.8466287-1.6015625,3.1152854-1.6015625H0.0136063c-1.3451493,0-2.0242538,0.6921641-2.0242538,2.0503731
v9.9057837C-2.0106475,11.7193327-1.3380729,12.3984375,0.0136063,12.3984375z M0.0593152,11.3471317
c-0.6725746,0-1.0186567-0.3591423-1.0186567-1.0121269V0.4684002c0-0.6464552,0.346082-1.0186567,1.0251865-1.0186567h2.9057837

v3.7938433c0,0.8227613,0.4113805,1.2276118,1.227612,1.2276118h3.7220149v5.8638062
c0,0.6529846-0.3460822,1.0121269-1.0251865,1.0121269H0.0593152z M4.3167777,3.4851911
c-0.2611938,0-0.3591416-0.1044776-0.3591416-0.3656716v-3.4673507l3.761194,3.8330224H4.3167777z M5.8839421,6.2734375H0.9277854
c-0.2350746,0-0.4113806,0.1763058-0.4113806,0.3983207c0,0.2285452,0.176306,0.404851,0.4113806,0.404851h4.9561567
c0.2285447,0,0.3983207-0.1763058,0.3983207-0.404851C6.2822628,6.4497433,6.1124868,6.2734375,5.8839421,6.2734375z
M5.8839421,8.5523558H0.9277854c-0.2350746,0-0.4113806,0.1828356-0.4113806,0.4113798

c0,0.2220154,0.176306,0.3917913,0.4113806,0.3917913h4.9561567c0.2285447,0,0.3983207-0.169776,0.3983207-0.3917913

C6.2822628,8.7351913,6.1124868,8.5523558,5.8839421,8.5523558z"></path></g></svg> <!----> 49 of 74 symbols inside <a data-v-354ee602="" href="/documentation/xcode/using-the-latest-code-signature-format" class="leaf-link" id="-1807968156" tabindex="-1" aria-describedby="label--1807968156 <root> usage--1807968156"> Using the Latest Code Signature Format <!----> To navigate the symbols, press Up Arrow, Down Arrow, Left Arrow or Right Arrow <!----> <svg data-v-

7f60a732="" data-v-7334d1b4="" aria-hidden="true"
xmlns="http://www.w3.org/2000/svg" class="svg-icon article-icon icon-inline"
viewBox="0 0 14 14"><g data-v-7f60a732="" transform="translate(3.616699,
1.608398)"><path data-v-7f60a732=""
d="M0.0136063,12.3984375H6.948308c1.3516788,0,2.0242538-
0.6856346,2.0242538-2.0438433V4.4254899
c0-0.842351-0.0979481-1.2080226-0.6203365-1.7434704L4.7542777-
0.9812267
C4.2580094-1.490555,3.8466287-1.6015625,3.1152854-
1.6015625H0.0136063c-1.3451493,0-2.0242538,0.6921641-
2.0242538,2.0503731
v9.9057837C-2.0106475,11.7193327-
1.3380729,12.3984375,0.0136063,12.3984375z M0.0593152,11.3471317
c-0.6725746,0-1.0186567-0.3591423-1.0186567-1.0121269V0.4684002c0-
0.6464552,0.346082-1.0186567,1.0251865-1.0186567h2.9057837

v3.7938433c0,0.8227613,0.4113805,1.2276118,1.227612,1.2276118h3.722014
9v5.8638062
c0,0.6529846-0.3460822,1.0121269-1.0251865,1.0121269H0.0593152z
M4.3167777,3.4851911
c-0.2611938,0-0.3591416-0.1044776-0.3591416-0.3656716v-
3.4673507l3.761194,3.8330224H4.3167777z
M5.8839421,6.2734375H0.9277854
c-0.2350746,0-0.4113806,0.1763058-
0.4113806,0.3983207c0,0.2285452,0.176306,0.404851,0.4113806,0.404851h4.
9561567
c0.2285447,0,0.3983207-0.1763058,0.3983207-
0.404851C6.2822628,6.4497433,6.1124868,6.2734375,5.8839421,6.2734375z
M5.8839421,8.5523558H0.9277854c-0.2350746,0-0.4113806,0.1828356-
0.4113806,0.4113798

c0,0.2220154,0.176306,0.3917913,0.4113806,0.3917913h4.9561567c0.228544
7,0,0.3983207-0.169776,0.3983207-0.3917913

C6.2822628,8.7351913,6.1124868,8.5523558,5.8839421,8.5523558z"></path>
</g></svg>
50 of 74 symbols inside
usage--1556812969" hidden="hidden"> To navigate the symbols, press Up Arrow, Down Arrow, Left Arrow or Right Arrow
class="depth-spacer"><!----> <svg data-v-7f60a732="" data-v-7334d1b4="" aria-hidden="true"
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1.608398)"><path data-v-7f60a732=""
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0.6856346,2.0242538-2.0438433V4.4254899
c0-0.842351-0.0979481-1.2080226-0.6203365-1.7434704L4.7542777-
0.9812267
C4.2580094-1.490555,3.8466287-1.6015625,3.1152854-
1.6015625H0.0136063c-1.3451493,0-2.0242538,0.6921641-
2.0242538,2.0503731
v9.9057837C-2.0106475,11.7193327-
1.3380729,12.3984375,0.0136063,12.3984375z M0.0593152,11.3471317
c-0.6725746,0-1.0186567-0.3591423-1.0186567-1.0121269V0.4684002c0-
0.6464552,0.346082-1.0186567,1.0251865-1.0186567h2.9057837

v3.7938433c0,0.8227613,0.4113805,1.2276118,1.227612,1.2276118h3.722014
9v5.8638062
c0,0.6529846-0.3460822,1.0121269-1.0251865,1.0121269H0.0593152z
M4.3167777,3.4851911
c-0.2611938,0-0.3591416-0.1044776-0.3591416-0.3656716v-
3.4673507l3.761194,3.8330224H4.3167777z
M5.8839421,6.2734375H0.9277854
c-0.2350746,0-0.4113806,0.1763058-
0.4113806,0.3983207c0,0.2285452,0.176306,0.404851,0.4113806,0.404851h4.
9561567
c0.2285447,0,0.3983207-0.1763058,0.3983207-
0.404851C6.2822628,6.4497433,6.1124868,6.2734375,5.8839421,6.2734375z
M5.8839421,8.5523558H0.9277854c-0.2350746,0-0.4113806,0.1828356-
0.4113806,0.4113798

c0,0.2220154,0.176306,0.3917913,0.4113806,0.3917913h4.9561567c0.228544
7,0,0.3983207-0.169776,0.3983207-0.3917913

C6.2822628,8.7351913,6.1124868,8.5523558,5.8839421,8.5523558z"></path>
</g></svg> <!----
> 51 of
74 symbols inside <a data-v-354ee602=""
href="/documentation/xcode/testing-a-beta-os" class="leaf-link"
id="2086981204" tabindex="-1" aria-describedby="label-2086981204 <root>
usage-2086981204"><p data-v-53c78ce5="" data-v-354ee602=""
class="highlight">Testing a Beta
OS</p><!----> <div class="vue-recycle-
scroller__item-view" style="transform: translateY(-9999px);"><div data-v-
354ee602="" data-v-3769e00e="" id="container--1939643890"
class="navigator-card-item" style="--nesting-index: 0;" aria-hidden="true"><div
data-v-354ee602="" class="head-wrapper"><span data-v-354ee602=""
hidden="hidden" id="usage--1939643890"> To navigate the symbols, press Up
Arrow, Down Arrow, Left Arrow or Right Arrow <div data-v-354ee602=""
class="depth-spacer"><!----> <div data-v-7334d1b4="" data-v-
354ee602="" class="NavigatorLeafIcon navigator-icon"><svg data-v-
7f60a732="" data-v-7334d1b4="" aria-hidden="true"
xmlns="http://www.w3.org/2000/svg" class="svg-icon article-icon icon-inline"
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1.608398)"><path data-v-7f60a732=""
d="M0.0136063,12.3984375H6.948308c1.3516788,0,2.0242538-
0.6856346,2.0242538-2.0438433V4.4254899

c0-0.842351-0.0979481-1.2080226-0.6203365-1.7434704L4.7542777-0.9812267
C4.2580094-1.490555,3.8466287-1.6015625,3.1152854-1.6015625H0.0136063c-1.3451493,0-2.0242538,0.6921641-2.0242538,2.0503731
v9.9057837C-2.0106475,11.7193327-1.3380729,12.3984375,0.0136063,12.3984375z M0.0593152,11.3471317
c-0.6725746,0-1.0186567-0.3591423-1.0186567-1.0121269V0.4684002c0-0.6464552,0.346082-1.0186567,1.0251865-1.0186567h2.9057837

v3.7938433c0,0.8227613,0.4113805,1.2276118,1.227612,1.2276118h3.7220149v5.8638062
c0,0.6529846-0.3460822,1.0121269-1.0251865,1.0121269H0.0593152z M4.3167777,3.4851911
c-0.2611938,0-0.3591416-0.1044776-0.3591416-0.3656716v-3.4673507l3.761194,3.8330224H4.3167777z M5.8839421,6.2734375H0.9277854
c-0.2350746,0-0.4113806,0.1763058-0.4113806,0.3983207c0,0.2285452,0.176306,0.404851,0.4113806,0.404851h4.9561567
c0.2285447,0,0.3983207-0.1763058,0.3983207-0.404851C6.2822628,6.4497433,6.1124868,6.2734375,5.8839421,6.2734375z
M5.8839421,8.5523558H0.9277854c-0.2350746,0-0.4113806,0.1828356-0.4113806,0.4113798

c0,0.2220154,0.176306,0.3917913,0.4113806,0.3917913h4.9561567c0.2285447,0,0.3983207-0.169776,0.3983207-0.3917913

C6.2822628,8.7351913,6.1124868,8.5523558,5.8839421,8.5523558z"></path></g></svg> <!----> 52 of 74 symbols inside <a data-v-354ee602="" href="/documentation/xcode/signing-a-daemon-with-a-restricted-entitlement" class="leaf-link" id="-1939643890" tabindex="-1" aria-describedby="label--1939643890 <root> usage--1939643890"> Signing a Daemon with a Restricted Entitlement <!----> To navigate the symbols, press Up Arrow, Down Arrow, Left Arrow or Right Arrow <!----> <svg data-v-7f60a732="" data-v-7334d1b4="" aria-hidden="true" xmlns="http://www.w3.org/2000/svg" class="svg-icon article-icon icon-inline" viewBox="0 0 14 14"><g data-v-7f60a732="" transform="translate(3.616699, 1.608398)"><path data-v-7f60a732="" d="M0.0136063,12.3984375H6.948308c1.3516788,0,2.0242538-0.6856346,2.0242538-2.0438433V4.4254899
c0-0.842351-0.0979481-1.2080226-0.6203365-1.7434704L4.7542777-0.9812267

C4.2580094-1.490555,3.8466287-1.6015625,3.1152854-
1.6015625H0.0136063c-1.3451493,0-2.0242538,0.6921641-
2.0242538,2.0503731
v9.9057837C-2.0106475,11.7193327-
1.3380729,12.3984375,0.0136063,12.3984375z M0.0593152,11.3471317
c-0.6725746,0-1.0186567-0.3591423-1.0186567-1.0121269V0.4684002c0-
0.6464552,0.346082-1.0186567,1.0251865-1.0186567h2.9057837

v3.7938433c0,0.8227613,0.4113805,1.2276118,1.227612,1.2276118h3.722014
9v5.8638062
c0,0.6529846-0.3460822,1.0121269-1.0251865,1.0121269H0.0593152z
M4.3167777,3.4851911
c-0.2611938,0-0.3591416-0.1044776-0.3591416-0.3656716v-
3.4673507l3.761194,3.8330224H4.3167777z
M5.8839421,6.2734375H0.9277854
c-0.2350746,0-0.4113806,0.1763058-
0.4113806,0.3983207c0,0.2285452,0.176306,0.404851,0.4113806,0.404851h4.
9561567
c0.2285447,0,0.3983207-0.1763058,0.3983207-
0.404851C6.2822628,6.4497433,6.1124868,6.2734375,5.8839421,6.2734375z
M5.8839421,8.5523558H0.9277854c-0.2350746,0-0.4113806,0.1828356-
0.4113806,0.4113798

c0,0.2220154,0.176306,0.3917913,0.4113806,0.3917913h4.9561567c0.228544
7,0,0.3983207-0.169776,0.3983207-0.3917913

C6.2822628,8.7351913,6.1124868,8.5523558,5.8839421,8.5523558z"></path>
</g></svg> <!----
> 53 of 74
symbols inside <a data-v-354ee602=""
href="/documentation/technotes/tn3125-inside-code-signing-provisioning-
profiles" class="leaf-link" id="413770605" tabindex="-1" aria-
describedby="label-413770605 <root> usage-413770605"><p data-v-
53c78ce5="" data-v-354ee602="" class="highlight">TN3125: Inside Code
Signing: Provisioning Profiles</p><!----> <div
class="vue-recycle-scroller__item-view" style="transform: translateY(-
9999px);"><div data-v-354ee602="" data-v-3769e00e="" id="container--
1788968281" class="navigator-card-item" style="--nesting-index: 0;" aria-
hidden="true"><div data-v-354ee602="" class="head-wrapper is-
group">
To navigate the symbols, press Up Arrow, Down Arrow, Left Arrow or Right Arrow
<!----> <!----
> <!----><span data-v-
354ee602="" id="label--1788968281" hidden="hidden"> 54 of 74 symbols
inside <h3 data-v-354ee602="" id="-1788968281" tabindex="-1" aria-
describedby="label--1788968281 <root> usage--1788968281" class="leaf-
link"><p data-v-53c78ce5="" data-v-354ee602=""
class="highlight">Documentation</p></h3><!----> </
div><div class="vue-recycle-scroller__item-view" style="transform: translateY(-
9999px);"><div data-v-354ee602="" data-v-3769e00e="" id="container-
1227248506" class="navigator-card-item" style="--nesting-index: 0;" aria-
hidden="true"> <span data-v-
354ee602="" hidden="hidden" id="usage-1227248506"> To navigate the
symbols, press Up Arrow, Down Arrow, Left Arrow or Right Arrow <div

data-v-354ee602="" class="depth-spacer"><!----> <svg data-v-7f60a732="" data-v-7334d1b4="" aria-hidden="true" xmlns="http://www.w3.org/2000/svg" class="svg-icon curly-brackets-icon icon-inline" viewBox="0 0 14 14"><g data-v-7f60a732="" transform="translate(-2.000000, -1.000000)"><g data-v-7f60a732="" transform="translate(2.616699, 1.948730)"><path data-v-7f60a732="" d="M0.0714366,6.0411005c0,0.3932204,0.2237288,0.6711864,0.6915254,0.7457628

C1.60364,6.9156766,1.9358432,7.3427954,1.9358432,8.4343204v1.9050856c0,1.8440676,0.840678,2.7118635,2.6711862,2.7118635
c0.1084747,0,0.2237291-0.0203381,0.3050852-0.0474567c0.2101693-0.0881357,0.3254237-0.2576275,0.3254237-0.4813566
c0-0.2644062-0.1152544-0.3999996-0.3525424-0.4610167c-0.0677967-0.0135593-0.1355934-0.0271187-0.2169495-0.0338984
c-1.1389828-0.081356-1.552542-0.5694914-1.552542-1.8237286V7.9529648c0-1.1457624-0.60339-1.7830505-1.6610171-1.8847456
c-0.020339,0-0.020339-0.0271187,0-0.0271187c1.0576271-0.1016951,1.6610171-0.7389832,1.6610171-1.8847456V1.8987277
c0-1.261017,0.4135592-1.7355932,1.552542-1.8169491c0.1084747-0.0067797,0.2033901-0.020339,0.2711868-0.0474576
c0.19661-0.0677966,0.298305-0.2169491,0.298305-0.4542373s-0.1220341-0.4-0.3525424-0.4813559
C4.7833009-0.9351707,4.6748261-0.94873,4.5392332-0.94873c-1.7694914,0-2.6033897,0.8813559-2.6033897,2.7118645v1.9118643
c0,1.0779662-0.3322033,1.5118647-1.1728812,1.6406779C0.2951654,5.3902531,0.0714366,5.6546597,0.0714366,6.0411005z
M12.6951647,6.0411005c0-0.3864408-0.2305079-0.6508474-0.6983051-0.7254238
c-0.8338976-0.1288133-1.1728811-0.5627117-1.1728811-1.6406779V1.7631344c0-1.8305085-0.8338985-2.7118645-2.6033897-2.7118645
c-0.1355934,0-0.2372875,0.0135593-0.3389826,0.0474576C7.6375384-0.8199164,7.522284-0.6572046,7.522284-0.4199165

s0.1152544,0.379661,0.3050847,0.4542373c0.0677967,0.0271186,0.1559324,0.040678,0.2644062,0.0474576

C9.223979,0.1360157,9.6510973,0.6377106,9.6510973,1.8987275v2.2576275c0,1.1525421,0.6033897,1.8847456,1.6542368,1.8847456
c0.020339,0,0.020339,0.0271187,0,0.0271187c-1.0508471,0-1.6542368,0.7322035-1.6542368,1.8847456v2.2508478
c0,1.2542372-0.4203396,1.7423725-1.5593224,1.8237286c-0.0813551,0.0067797-0.1423721,0.020339-0.2101688,0.0338984

C7.6443181,12.1088972,7.522284,12.25805,7.522284,12.5224562c0,0.2372885,0.1288137,0.4135599,0.3322034,0.4813566

c0.081356,0.0271187,0.1898308,0.0474567,0.2983046,0.0474567c1.8305082,0,2.6711864-0.8677959,2.6711864-2.7118635V8.4343204
c0-1.0915251,0.3389835-1.5186439,1.1728811-1.6474571C12.4646568,6.7122869,12.6951647,6.4343209,12.6951647,6.04110

05z"></path></g></g></svg> <!----> 55 of 74 symbols inside <a data-v-354ee602="" href="/documentation/xcode/slothcreator_building_docc_documentation_in_xcode" class="leaf-link" id="1227248506" tabindex="-1" aria-describedby="label-1227248506 <root> usage-1227248506"> SlothCreator: Building DocC Documentation in Xcode <!----> To navigate the symbols, press Up Arrow, Down Arrow, Left Arrow or Right Arrow <!----> <svg data-v-7f60a732="" data-v-7334d1b4="" aria-hidden="true" xmlns="http://www.w3.org/2000/svg" class="svg-icon article-icon icon-inline" viewBox="0 0 14 14"><g data-v-7f60a732="" transform="translate(3.616699, 1.608398)"><path data-v-7f60a732="" d="M0.0136063,12.3984375H6.948308c1.3516788,0,2.0242538-0.6856346,2.0242538-2.0438433V4.4254899
c0-0.842351-0.0979481-1.2080226-0.6203365-1.7434704L4.7542777-0.9812267
C4.2580094-1.490555,3.8466287-1.6015625,3.1152854-1.6015625H0.0136063c-1.3451493,0-2.0242538,0.6921641-2.0242538,2.0503731
v9.9057837C-2.0106475,11.7193327-1.3380729,12.3984375,0.0136063,12.3984375z M0.0593152,11.3471317
c-0.6725746,0-1.0186567-0.3591423-1.0186567-1.0121269V0.4684002c0-0.6464552,0.346082-1.0186567,1.0251865-1.0186567h2.9057837

v3.7938433c0,0.8227613,0.4113805,1.2276118,1.227612,1.2276118h3.7220149v5.8638062
c0,0.6529846-0.3460822,1.0121269-1.0251865,1.0121269H0.0593152z M4.3167777,3.4851911
c-0.2611938,0-0.3591416-0.1044776-0.3591416-0.3656716v-3.4673507l3.761194,3.8330224H4.3167777z M5.8839421,6.2734375H0.9277854
c-0.2350746,0-0.4113806,0.1763058-0.4113806,0.3983207c0,0.2285452,0.176306,0.404851,0.4113806,0.404851h4.9561567
c0.2285447,0,0.3983207-0.1763058,0.3983207-0.404851C6.2822628,6.4497433,6.1124868,6.2734375,5.8839421,6.2734375z
M5.8839421,8.5523558H0.9277854c-0.2350746,0-0.4113806,0.1828356-0.4113806,0.4113798

c0,0.2220154,0.176306,0.3917913,0.4113806,0.3917913h4.9561567c0.2285447,0,0.3983207-0.169776,0.3983207-0.3917913

C6.2822628,8.7351913,6.1124868,8.5523558,5.8839421,8.5523558z"></path></g></svg> <!----> 56 of 74 symbols inside <a data-v-354ee602=""

href="/documentation/xcode/documenting-apps-frameworks-and-packages" class="leaf-link" id="675319141" tabindex="-1" aria-describedby="label-675319141 <root> usage-675319141"> Documenting apps, frameworks, and packages <!----> To navigate the symbols, press Up Arrow, Down Arrow, Left Arrow or Right Arrow <!----> <svg data-v-7f60a732="" data-v-7334d1b4="" aria-hidden="true" xmlns="http://www.w3.org/2000/svg" class="svg-icon article-icon icon-inline" viewBox="0 0 14 14"><g data-v-7f60a732="" transform="translate(3.616699, 1.608398)"><path data-v-7f60a732="" d="M0.0136063,12.3984375H6.948308c1.3516788,0,2.0242538-0.6856346,2.0242538-2.0438433V4.4254899
c0-0.842351-0.0979481-1.2080226-0.6203365-1.7434704L4.7542777-0.9812267
C4.2580094-1.490555,3.8466287-1.6015625,3.1152854-1.6015625H0.0136063c-1.3451493,0-2.0242538,0.6921641-2.0242538,2.0503731
v9.9057837C-2.0106475,11.7193327-1.3380729,12.3984375,0.0136063,12.3984375z M0.0593152,11.3471317
c-0.6725746,0-1.0186567-0.3591423-1.0186567-1.0121269V0.4684002c0-0.6464552,0.346082-1.0186567,1.0251865-1.0186567h2.9057837

v3.7938433c0,0.8227613,0.4113805,1.2276118,1.227612,1.2276118h3.7220149v5.8638062
c0,0.6529846-0.3460822,1.0121269-1.0251865,1.0121269H0.0593152z M4.3167777,3.4851911
c-0.2611938,0-0.3591416-0.1044776-0.3591416-0.3656716v-3.4673507l3.761194,3.8330224H4.3167777z M5.8839421,6.2734375H0.9277854
c-0.2350746,0-0.4113806,0.1763058-0.4113806,0.3983207c0,0.2285452,0.176306,0.404851,0.4113806,0.404851h4.9561567
c0.2285447,0,0.3983207-0.1763058,0.3983207-0.404851C6.2822628,6.4497433,6.1124868,6.2734375,5.8839421,6.2734375z
M5.8839421,8.5523558H0.9277854c-0.2350746,0-0.4113806,0.1828356-0.4113806,0.4113798

c0,0.2220154,0.176306,0.3917913,0.4113806,0.3917913h4.9561567c0.2285447,0,0.3983207-0.169776,0.3983207-0.3917913

C6.2822628,8.7351913,6.1124868,8.5523558,5.8839421,8.5523558z"></path></g></svg> <!----> 57 of 74 symbols inside <a data-v-354ee602="" href="/documentation/xcode/writing-symbol-documentation-in-your-source-files" class="leaf-link" id="-1353076412" tabindex="-1" aria-describedby="label--1353076412 <root> usage--1353076412"><p data-v-53c78ce5="" data-v-

354ee602="" class="highlight">Writing Symbol Documentation in Your Source Files <!----> To navigate the symbols, press Up Arrow, Down Arrow, Left Arrow or Right Arrow <!----> <svg data-v-7f60a732="" data-v-7334d1b4="" aria-hidden="true" xmlns="http://www.w3.org/2000/svg" class="svg-icon article-icon icon-inline" viewBox="0 0 14 14"><g data-v-7f60a732="" transform="translate(3.616699, 1.608398)"><path data-v-7f60a732="" d="M0.0136063,12.3984375H6.948308c1.3516788,0,2.0242538-0.6856346,2.0242538-2.0438433V4.4254899
c0-0.842351-0.0979481-1.2080226-0.6203365-1.7434704L4.7542777-0.9812267
C4.2580094-1.490555,3.8466287-1.6015625,3.1152854-1.6015625H0.0136063c-1.3451493,0-2.0242538,0.6921641-2.0242538,2.0503731
v9.9057837C-2.0106475,11.7193327-1.3380729,12.3984375,0.0136063,12.3984375z M0.0593152,11.3471317
c-0.6725746,0-1.0186567-0.3591423-1.0186567-1.0121269V0.4684002c0-0.6464552,0.346082-1.0186567,1.0251865-1.0186567h2.9057837

v3.7938433c0,0.8227613,0.4113805,1.2276118,1.227612,1.2276118h3.7220149v5.8638062
c0,0.6529846-0.3460822,1.0121269-1.0251865,1.0121269H0.0593152z M4.3167777,3.4851911
c-0.2611938,0-0.3591416-0.1044776-0.3591416-0.3656716v-3.4673507l3.761194,3.8330224H4.3167777z M5.8839421,6.2734375H0.9277854
c-0.2350746,0-0.4113806,0.1763058-0.4113806,0.3983207c0,0.2285452,0.176306,0.404851,0.4113806,0.404851h4.9561567
c0.2285447,0,0.3983207-0.1763058,0.3983207-0.404851C6.2822628,6.4497433,6.1124868,6.2734375,5.8839421,6.2734375z
M5.8839421,8.5523558H0.9277854c-0.2350746,0-0.4113806,0.1828356-0.4113806,0.4113798

c0,0.2220154,0.176306,0.3917913,0.4113806,0.3917913h4.9561567c0.2285447,0,0.3983207-0.169776,0.3983207-0.3917913

C6.2822628,8.7351913,6.1124868,8.5523558,5.8839421,8.5523558z"></path></g></svg> <!----> 58 of 74 symbols inside <a data-v-354ee602="" href="/documentation/xcode/adding-structure-to-your-documentation-pages" class="leaf-link" id="7438250" tabindex="-1" aria-describedby="label-7438250 <root> usage-7438250"> Adding Structure to Your Documentation Pages <!----> <div data-v-

354ee602="" data-v-3769e00e="" id="container--82853291" class="navigator-card-item" style="--nesting-index: 0;" aria-hidden="true"> To navigate the symbols, press Up Arrow, Down Arrow, Left Arrow or Right Arrow <!----> <svg data-v-7f60a732="" data-v-7334d1b4="" aria-hidden="true" xmlns="http://www.w3.org/2000/svg" class="svg-icon article-icon icon-inline" viewBox="0 0 14 14"><g data-v-7f60a732="" transform="translate(3.616699, 1.608398)"><path data-v-7f60a732="" d="M0.0136063,12.3984375H6.948308c1.3516788,0,2.0242538-0.6856346,2.0242538-2.0438433V4.4254899
c0-0.842351-0.0979481-1.2080226-0.6203365-1.7434704L4.7542777-0.9812267
C4.2580094-1.490555,3.8466287-1.6015625,3.1152854-1.6015625H0.0136063c-1.3451493,0-2.0242538,0.6921641-2.0242538,2.0503731
v9.9057837C-2.0106475,11.7193327-1.3380729,12.3984375,0.0136063,12.3984375z M0.0593152,11.3471317
c-0.6725746,0-1.0186567-0.3591423-1.0186567-1.0121269V0.4684002c0-0.6464552,0.346082-1.0186567,1.0251865-1.0186567h2.9057837

v3.7938433c0,0.8227613,0.4113805,1.2276118,1.227612,1.2276118h3.7220149v5.8638062
c0,0.6529846-0.3460822,1.0121269-1.0251865,1.0121269H0.0593152z M4.3167777,3.4851911
c-0.2611938,0-0.3591416-0.1044776-0.3591416-0.3656716v-3.4673507l3.761194,3.8330224H4.3167777z M5.8839421,6.2734375H0.9277854
c-0.2350746,0-0.4113806,0.1763058-0.4113806,0.3983207c0,0.2285452,0.176306,0.404851,0.4113806,0.404851h4.9561567
c0.2285447,0,0.3983207-0.1763058,0.3983207-0.404851C6.2822628,6.4497433,6.1124868,6.2734375,5.8839421,6.2734375z
M5.8839421,8.5523558H0.9277854c-0.2350746,0-0.4113806,0.1828356-0.4113806,0.4113798

c0,0.2220154,0.176306,0.3917913,0.4113806,0.3917913h4.9561567c0.2285447,0,0.3983207-0.169776,0.3983207-0.3917913

C6.2822628,8.7351913,6.1124868,8.5523558,5.8839421,8.5523558z"></path></g></svg> <!----> 59 of 74 symbols inside <a data-v-354ee602="" href="/documentation/xcode/adding-supplemental-content-to-a-documentation-catalog" class="leaf-link" id="-82853291" tabindex="-1" aria-describedby="label--82853291 <root> usage--82853291"> Adding Supplemental Content to a Documentation Catalog <!----> <div data-v-

354ee602="" class="head-wrapper"> To navigate the symbols, press Up Arrow, Down Arrow, Left Arrow or Right Arrow <!----> <svg data-v-7f60a732="" data-v-7334d1b4="" aria-hidden="true" xmlns="http://www.w3.org/2000/svg" class="svg-icon article-icon icon-inline" viewBox="0 0 14 14"><g data-v-7f60a732="" transform="translate(3.616699, 1.608398)"><path data-v-7f60a732="" d="M0.0136063,12.3984375H6.948308c1.3516788,0,2.0242538-0.6856346,2.0242538-2.0438433V4.4254899
c0-0.842351-0.0979481-1.2080226-0.6203365-1.7434704L4.7542777-0.9812267
C4.2580094-1.490555,3.8466287-1.6015625,3.1152854-1.6015625H0.0136063c-1.3451493,0-2.0242538,0.6921641-2.0242538,2.0503731
v9.9057837C-2.0106475,11.7193327-1.3380729,12.3984375,0.0136063,12.3984375z M0.0593152,11.3471317
c-0.6725746,0-1.0186567-0.3591423-1.0186567-1.0121269V0.4684002c0-0.6464552,0.346082-1.0186567,1.0251865-1.0186567h2.9057837

v3.7938433c0,0.8227613,0.4113805,1.2276118,1.227612,1.2276118h3.7220149v5.8638062
c0,0.6529846-0.3460822,1.0121269-1.0251865,1.0121269H0.0593152z M4.3167777,3.4851911
c-0.2611938,0-0.3591416-0.1044776-0.3591416-0.3656716v-3.4673507l3.761194,3.8330224H4.3167777z M5.8839421,6.2734375H0.9277854
c-0.2350746,0-0.4113806,0.1763058-0.4113806,0.3983207c0,0.2285452,0.176306,0.404851,0.4113806,0.404851h4.9561567
c0.2285447,0,0.3983207-0.1763058,0.3983207-0.404851C6.2822628,6.4497433,6.1124868,6.2734375,5.8839421,6.2734375z
M5.8839421,8.5523558H0.9277854c-0.2350746,0-0.4113806,0.1828356-0.4113806,0.4113798

c0,0.2220154,0.176306,0.3917913,0.4113806,0.3917913h4.9561567c0.2285447,0,0.3983207-0.169776,0.3983207-0.3917913

C6.2822628,8.7351913,6.1124868,8.5523558,5.8839421,8.5523558z"></path></g></svg> <!----> 60 of 74 symbols inside <a data-v-354ee602="" href="/documentation/xcode/formatting-your-documentation-content" class="leaf-link" id="-627517279" tabindex="-1" aria-describedby="label--627517279 <root> usage--627517279"> Formatting Your Documentation Content <!----> To navigate the symbols, press Up Arrow, Down Arrow, Left Arrow or Right Arrow <div data-v-354ee602=""

class="depth-spacer"><!----> <svg data-v-7f60a732="" data-v-7334d1b4="" aria-hidden="true" xmlns="http://www.w3.org/2000/svg" class="svg-icon article-icon icon-inline" viewBox="0 0 14 14"><g data-v-7f60a732="" transform="translate(3.616699, 1.608398)"><path data-v-7f60a732="" d="M0.0136063,12.3984375H6.948308c1.3516788,0,2.0242538-0.6856346,2.0242538-2.0438433V4.4254899
c0-0.842351-0.0979481-1.2080226-0.6203365-1.7434704L4.7542777-0.9812267
C4.2580094-1.490555,3.8466287-1.6015625,3.1152854-1.6015625H0.0136063c-1.3451493,0-2.0242538,0.6921641-2.0242538,2.0503731
v9.9057837C-2.0106475,11.7193327-1.3380729,12.3984375,0.0136063,12.3984375z M0.0593152,11.3471317
c-0.6725746,0-1.0186567-0.3591423-1.0186567-1.0121269V0.4684002c0-0.6464552,0.346082-1.0186567,1.0251865-1.0186567h2.9057837

v3.7938433c0,0.8227613,0.4113805,1.2276118,1.227612,1.2276118h3.7220149v5.8638062
c0,0.6529846-0.3460822,1.0121269-1.0251865,1.0121269H0.0593152z M4.3167777,3.4851911
c-0.2611938,0-0.3591416-0.1044776-0.3591416-0.3656716v-3.4673507l3.761194,3.8330224H4.3167777z M5.8839421,6.2734375H0.9277854
c-0.2350746,0-0.4113806,0.1763058-0.4113806,0.3983207c0,0.2285452,0.176306,0.404851,0.4113806,0.404851h4.9561567
c0.2285447,0,0.3983207-0.1763058,0.3983207-0.404851C6.2822628,6.4497433,6.1124868,6.2734375,5.8839421,6.2734375z
M5.8839421,8.5523558H0.9277854c-0.2350746,0-0.4113806,0.1828356-0.4113806,0.4113798

c0,0.2220154,0.176306,0.3917913,0.4113806,0.3917913h4.9561567c0.2285447,0,0.3983207-0.169776,0.3983207-0.3917913

C6.2822628,8.7351913,6.1124868,8.5523558,5.8839421,8.5523558z"></path></g></svg> <!----> 61 of 74 symbols inside <a data-v-354ee602="" href="/documentation/xcode/distributing-documentation-to-external-developers" class="leaf-link" id="133638384" tabindex="-1" aria-describedby="label-133638384 <root> usage-133638384"> Distributing Documentation to External Developers <!----> To navigate the symbols, press Up Arrow, Down Arrow, Left Arrow or Right Arrow <!----> <!----> <!----> 62 of 74 symbols inside <h3

data-v-354ee602="" id="-1788968252" tabindex="-1" aria-describedby="label--1788968252 <root> usage--1788968252" class="leaf-link"> Code Sharing </h3><!----> To navigate the symbols, press Up Arrow, Down Arrow, Left Arrow or Right Arrow <button data-v-354ee602="" tabindex="-1" aria-labelledby="98698880" aria-expanded="false" aria-describedby="label-98698880 <root> label-parent-98698880" class="tree-toggle"><svg data-v-7f60a732="" data-v-354ee602="" aria-hidden="true" xmlns="http://www.w3.org/2000/svg" class="svg-icon inline-chevron-right-icon icon-inline chevron" viewBox="0 0 14 14"><path data-v-7f60a732="" d="m4.81347656 13.1269531c.22558594 0 .41015625-.0820312.56738282-.2324219l5.31835942-5.19531245c.1845703-.19140625.2802734-.38964844.2802734-.63574219 0-.23925781-.0888672-.45117187-.2802734-.62890625l-5.31835942-5.20214843c-.15722657-.15039063-.34179688-.23242188-.56738282-.23242188-.45800781 0-.81347656.35546875-.81347656.80664062 0 .21875.09570312.43066407.24609375.58789063l4.79199219 4.67578125-4.79199219 4.6621094c-.15722656.1640625-.24609375.3623047-.24609375.5878906 0 .4511719.35546875.8066406.81347656.8066406z"></path></svg></button> <svg data-v-7f60a732="" data-v-7334d1b4="" aria-hidden="true" xmlns="http://www.w3.org/2000/svg" class="svg-icon collection-icon icon-inline" viewBox="0 0 14 14"><title data-v-7f60a732="">Collection</title><g data-v-7f60a732="" transform="translate(2.116699, 4.455566)"><path data-v-7f60a732="" d="M-1.2412647-0.767793c0.4863523,0,0.8754342-0.3890819,0.8754342-0.8684863 c0-0.4863524-0.3890819-0.8754342-0.8754342-0.8754342S-2.116699-2.1226318-2.116699-1.6362793 C-2.116699-1.1568749-1.7276171-0.767793-1.2412647-0.767793z M1.829703-1.0804482h9.490819 c0.3126545,0,0.5627785-0.2431761,0.5627785-0.5558312c0-0.319603-0.250124-0.5627792-0.5627785-0.5627792H1.829703 c-0.319603,0-0.5627792,0.2431762-0.5627792,0.5627792C1.2669238-1.3236243,1.5101-1.0804482,1.829703-1.0804482z M-1.2412647,3.4356809c0.4863523,0,0.8754342-0.3890817,0.8754342-0.8754342s-0.3890819-0.8754343-0.8754342-0.8754343 S-2.116699,2.0738943-2.116699,2.5602467S-1.7276171,3.4356809-1.2412647,3.4356809z M1.829703,3.1230259h9.490819 c0.3126545,0,0.5627785-0.2501242,0.5627785-0.5627792s-0.250124-0.5558312-0.5627785-0.5558312H1.829703 c-0.319603,0-0.5627792,0.243176-0.5627792,0.5558312S1.5101,3.1230259,1.829703,3.1230259z M-1.2412647,7.6391549 c0.4863523,0,0.8754342-0.3960299,0.8754342-0.8754344c0-0.4863524-0.3890819-0.8754339-0.8754342-0.8754339

S-2.116699,6.2773681-2.116699,6.7637205C-2.116699,7.243125-1.7276171,7.6391549-1.2412647,7.6391549z M1.829703,7.3195519 h9.490819c0.3126545,0,0.5627785-0.2431765,0.5627785-0.5558314c0-0.319603-0.250124-0.5627789-0.5627785-0.5627789H1.829703 c-0.319603,0-0.5627792,0.243176-0.5627792,0.5627789C1.2669238,7.0763755,1.5101,7.3195519,1.829703,7.3195519z"></path></g></svg> , containing 16 symbols 63 of 74 symbols inside <a data-v-354ee602="" href="/documentation/xcode/swift-packages" class="leaf-link" id="98698880" tabindex="-1" aria-describedby="label-98698880 <root> label-parent-98698880 usage-98698880"> Swift Packages <!----> To navigate the symbols, press Up Arrow, Down Arrow, Left Arrow or Right Arrow <!----> <!----> <!----> 64 of 74 symbols inside <h3 data-v-354ee602="" id="-1788968250" tabindex="-1" aria-describedby="label--1788968250 <root> usage--1788968250" class="leaf-link"> Performance </h3><!----> To navigate the symbols, press Up Arrow, Down Arrow, Left Arrow or Right Arrow <button data-v-354ee602="" tabindex="-1" aria-labelledby="-1964426591" aria-expanded="false" aria-describedby="label--1964426591 <root> label-parent--1964426591" class="tree-toggle"><svg data-v-7f60a732="" data-v-354ee602="" aria-hidden="true" xmlns="http://www.w3.org/2000/svg" class="svg-icon inline-chevron-right-icon icon-inline chevron" viewBox="0 0 14 14"><path data-v-7f60a732="" d="m4.81347656 13.1269531c.22558594 0 .41015625-.0820312.56738282-.2324219l5.31835942-5.19531245c.1845703-.19140625.2802734-.38964844.2802734-.63574219 0-.23925781-.0888672-.45117187-.2802734-.62890625l-5.31835942-5.20214843c-.15722657-.15039063-.34179688-.23242188-.56738282-.23242188-.45800781 0-.81347656.35546875-.81347656.80664062 0 .21875.09570312.43066407.24609375.58789063l4.79199219 4.67578125-4.79199219 4.6621094c-.15722656.1640625-.24609375.3623047-.24609375.58789060 .4511719.35546875.8066406.81347656.8066406z"></path></svg></button> <svg data-v-7f60a732="" data-v-7334d1b4="" aria-hidden="true" xmlns="http://www.w3.org/2000/svg" class="svg-icon collection-

icon icon-inline" viewBox="0 0 14 14"><title
data-v-7f60a732="">Collection</title><g data-v-7f60a732=""
transform="translate(2.116699, 4.455566)"><path data-v-7f60a732="" d="M-
1.2412647-0.767793c0.4863523,0,0.8754342-0.3890819,0.8754342-0.8684863
c0-0.4863524-0.3890819-0.8754342-0.8754342-0.8754342S-2.116699-
2.1226318-2.116699-1.6362793
C-2.116699-1.1568749-1.7276171-0.767793-1.2412647-0.767793z
M1.829703-1.0804482h9.490819
c0.3126545,0,0.5627785-0.2431761,0.5627785-0.5558312c0-0.319603-
0.250124-0.5627792-0.5627785-0.5627792H1.829703
c-0.319603,0-0.5627792,0.2431762-0.5627792,0.5627792C1.2669238-
1.3236243,1.5101-1.0804482,1.829703-1.0804482z
M-1.2412647,3.4356809c0.4863523,0,0.8754342-0.3890817,0.8754342-
0.8754342s-0.3890819-0.8754343-0.8754342-0.8754343
S-2.116699,2.0738943-2.116699,2.5602467S-1.7276171,3.4356809-
1.2412647,3.4356809z M1.829703,3.1230259h9.490819
c0.3126545,0,0.5627785-0.2501242,0.5627785-0.5627792s-0.250124-
0.5558312-0.5627785-0.5558312H1.829703
c-0.319603,0-0.5627792,0.243176-
0.5627792,0.5558312S1.5101,3.1230259,1.829703,3.1230259z M-
1.2412647,7.6391549
c0.4863523,0,0.8754342-0.3960299,0.8754342-0.8754344c0-0.4863524-
0.3890819-0.8754339-0.8754342-0.8754339
S-2.116699,6.2773681-2.116699,6.7637205C-2.116699,7.243125-
1.7276171,7.6391549-1.2412647,7.6391549z M1.829703,7.3195519
h9.490819c0.3126545,0,0.5627785-0.2431765,0.5627785-0.5558314c0-
0.319603-0.250124-0.5627789-0.5627785-0.5627789H1.829703
c-0.319603,0-0.5627792,0.243176-
0.5627792,0.5627789C1.2669238,7.0763755,1.5101,7.3195519,1.829703,7.319
5519z"></path></g></svg> <div data-v-354ee602="" class="title-
container"><span data-v-354ee602="" hidden="hidden" id="label-parent--
1964426591">, containing 9 symbols<span data-v-354ee602=""
id="label--1964426591" hidden="hidden"> 65 of 74 symbols inside <a
data-v-354ee602="" href="/documentation/xcode/improving-your-app-s-
performance" class="leaf-link" id="-1964426591" tabindex="-1" aria-
describedby="label--1964426591 <root> label-parent--1964426591 usage--
1964426591"><p data-v-53c78ce5="" data-v-354ee602=""
class="highlight">Improving your app’s
performance</p><!----> <div class="vue-
recycle-scroller__item-view" style="transform: translateY(-9999px);"><div data-
v-354ee602="" data-v-3769e00e="" id="container-1446255975"
class="navigator-card-item" style="--nesting-index: 0;" aria-hidden="true"><div
data-v-354ee602="" class="head-wrapper"><span data-v-354ee602=""
hidden="hidden" id="usage-1446255975"> To navigate the symbols, press Up
Arrow, Down Arrow, Left Arrow or Right Arrow <div data-v-354ee602=""
class="depth-spacer"><button data-v-354ee602="" tabindex="-1" aria-
labelledby="1446255975" aria-expanded="false" aria-describedby="label-
1446255975 <root> label-parent-1446255975" class="tree-toggle"><svg data-
v-7f60a732="" data-v-354ee602="" aria-hidden="true"
xmlns="http://www.w3.org/2000/svg" class="svg-icon inline-chevron-right-icon
icon-inline chevron" viewBox="0 0 14 14"><path data-v-7f60a732=""
d="m4.81347656 13.1269531c.22558594
0 .41015625-.0820312.56738282-.2324219l5.31835942-
5.19531245c.1845703-.19140625.2802734-.38964844.2802734-.63574219

0-.23925781-.0888672-.45117187-.2802734-.62890625l-5.31835942-
5.20214843c-.15722657-.15039063-.34179688-.23242188-.56738282-.2324218
8-.45800781 0-.81347656.35546875-.81347656.80664062
0 .21875.09570312.43066407.24609375.58789063l4.79199219 4.67578125-
4.79199219
4.6621094c-.15722656.1640625-.24609375.3623047-.24609375.5878906
0
.4511719.35546875.8066406.81347656.8066406z"></path></svg></button>
<div data-v-7334d1b4="" data-v-354ee602="" class="NavigatorLeafIcon
navigator-icon"><svg data-v-7f60a732="" data-v-7334d1b4="" aria-
hidden="true" xmlns="http://www.w3.org/2000/svg" class="svg-icon collection-
icon icon-inline" viewBox="0 0 14 14"><title
data-v-7f60a732="">Collection</title><g data-v-7f60a732=""
transform="translate(2.116699, 4.455566)"><path data-v-7f60a732="" d="M-
1.2412647-0.767793c0.4863523,0,0.8754342-0.3890819,0.8754342-0.8684863
c0-0.4863524-0.3890819-0.8754342-0.8754342-0.8754342S-2.116699-
2.1226318-2.116699-1.6362793
C-2.116699-1.1568749-1.7276171-0.767793-1.2412647-0.767793z
M1.829703-1.0804482h9.490819
c0.3126545,0,0.5627785-0.2431761,0.5627785-0.5558312c0-0.319603-
0.250124-0.5627792-0.5627785-0.5627792H1.829703
c-0.319603,0-0.5627792,0.2431762-0.5627792,0.5627792C1.2669238-
1.3236243,1.5101-1.0804482,1.829703-1.0804482z
M-1.2412647,3.4356809c0.4863523,0,0.8754342-0.3890817,0.8754342-
0.8754342s-0.3890819-0.8754343-0.8754342-0.8754343
S-2.116699,2.0738943-2.116699,2.5602467S-1.7276171,3.4356809-
1.2412647,3.4356809z M1.829703,3.1230259h9.490819
c0.3126545,0,0.5627785-0.2501242,0.5627785-0.5627792s-0.250124-
0.5558312-0.5627785-0.5558312H1.829703
c-0.319603,0-0.5627792,0.243176-
0.5627792,0.5558312S1.5101,3.1230259,1.829703,3.1230259z M-
1.2412647,7.6391549
c0.4863523,0,0.8754342-0.3960299,0.8754342-0.8754344c0-0.4863524-
0.3890819-0.8754339-0.8754342-0.8754339
S-2.116699,6.2773681-2.116699,6.7637205C-2.116699,7.243125-
1.7276171,7.6391549-1.2412647,7.6391549z M1.829703,7.3195519
h9.490819c0.3126545,0,0.5627785-0.2431765,0.5627785-0.5558314c0-
0.319603-0.250124-0.5627789-0.5627785-0.5627789H1.829703
c-0.319603,0-0.5627792,0.243176-
0.5627792,0.5627789C1.2669238,7.0763755,1.5101,7.3195519,1.829703,7.319
5519z"></path></g></svg> <div data-v-354ee602="" class="title-
container"><span data-v-354ee602="" hidden="hidden" id="label-parent-
1446255975">, containing 4 symbols<span data-v-354ee602=""
id="label-1446255975" hidden="hidden"> 66 of 74 symbols inside <a
data-v-354ee602="" href="/documentation/xcode/analyzing-the-performance-of-
your-shipping-app" class="leaf-link" id="1446255975" tabindex="-1" aria-
describedby="label-1446255975 <root> label-parent-1446255975 usage-
1446255975"><p data-v-53c78ce5="" data-v-354ee602=""
class="highlight">Analyzing the Performance of Your Shipping
App</p><!----> <div class="vue-recycle-
scroller__item-view" style="transform: translateY(-9999px);"><div data-v-
354ee602="" data-v-3769e00e="" id="container--797728738" class="navigator-
card-item" style="--nesting-index: 0;" aria-hidden="true"><div data-v-
354ee602="" class="head-wrapper"><span data-v-354ee602=""

hidden="hidden" id="usage--797728738"> To navigate the symbols, press Up Arrow, Down Arrow, Left Arrow or Right Arrow <!----> <svg data-v-7f60a732="" data-v-7334d1b4="" aria-hidden="true" xmlns="http://www.w3.org/2000/svg" class="svg-icon article-icon icon-inline" viewBox="0 0 14 14"><g data-v-7f60a732="" transform="translate(3.616699, 1.608398)"><path data-v-7f60a732="" d="M0.0136063,12.3984375H6.948308c1.3516788,0,2.0242538-0.6856346,2.0242538-2.0438433V4.4254899
c0-0.842351-0.0979481-1.2080226-0.6203365-1.7434704L4.7542777-0.9812267
C4.2580094-1.490555,3.8466287-1.6015625,3.1152854-1.6015625H0.0136063c-1.3451493,0-2.0242538,0.6921641-2.0242538,2.0503731
v9.9057837C-2.0106475,11.7193327-1.3380729,12.3984375,0.0136063,12.3984375z M0.0593152,11.3471317
c-0.6725746,0-1.0186567-0.3591423-1.0186567-1.0121269V0.4684002c0-0.6464552,0.346082-1.0186567,1.0251865-1.0186567h2.9057837

v3.7938433c0,0.8227613,0.4113805,1.2276118,1.227612,1.2276118h3.7220149v5.8638062
c0,0.6529846-0.3460822,1.0121269-1.0251865,1.0121269H0.0593152z M4.3167777,3.4851911
c-0.2611938,0-0.3591416-0.1044776-0.3591416-0.3656716v-3.4673507l3.761194,3.8330224H4.3167777z M5.8839421,6.2734375H0.9277854
c-0.2350746,0-0.4113806,0.1763058-0.4113806,0.3983207c0,0.2285452,0.176306,0.404851,0.4113806,0.404851h4.9561567
c0.2285447,0,0.3983207-0.1763058,0.3983207-0.404851C6.2822628,6.4497433,6.1124868,6.2734375,5.8839421,6.2734375z
M5.8839421,8.5523558H0.9277854c-0.2350746,0-0.4113806,0.1828356-0.4113806,0.4113798

c0,0.2220154,0.176306,0.3917913,0.4113806,0.3917913h4.9561567c0.2285447,0,0.3983207-0.169776,0.3983207-0.3917913

C6.2822628,8.7351913,6.1124868,8.5523558,5.8839421,8.5523558z"></path></g></svg> <!----> 68 of 74 symbols inside <a data-v-354ee602="" href="/documentation/xcode/improving-the-speed-of-incremental-builds" class="leaf-link" id="-797728738" tabindex="-1" aria-describedby="label--797728738 <root> usage--797728738"> Improving the Speed of Incremental Builds <!----> To navigate the symbols, press Up Arrow, Down Arrow, Left Arrow or Right Arrow <!----> <div data-v-7334d1b4="" data-v-

354ee602="" class="NavigatorLeafIcon navigator-icon"><svg data-v-7f60a732="" data-v-7334d1b4="" aria-hidden="true" xmlns="http://www.w3.org/2000/svg" class="svg-icon article-icon icon-inline" viewBox="0 0 14 14"><g data-v-7f60a732="" transform="translate(3.616699, 1.608398)"><path data-v-7f60a732="" d="M0.0136063,12.3984375H6.948308c1.3516788,0,2.0242538-0.6856346,2.0242538-2.0438433V4.4254899
c0-0.842351-0.0979481-1.2080226-0.6203365-1.7434704L4.7542777-0.9812267
C4.2580094-1.490555,3.8466287-1.6015625,3.1152854-1.6015625H0.0136063c-1.3451493,0-2.0242538,0.6921641-2.0242538,2.0503731
v9.9057837C-2.0106475,11.7193327-1.3380729,12.3984375,0.0136063,12.3984375z M0.0593152,11.3471317
c-0.6725746,0-1.0186567-0.3591423-1.0186567-1.0121269V0.4684002c0-0.6464552,0.346082-1.0186567,1.0251865-1.0186567h2.9057837

v3.7938433c0,0.8227613,0.4113805,1.2276118,1.227612,1.2276118h3.7220149v5.8638062
c0,0.6529846-0.3460822,1.0121269-1.0251865,1.0121269H0.0593152z M4.3167777,3.4851911
c-0.2611938,0-0.3591416-0.1044776-0.3591416-0.3656716v-3.4673507l3.761194,3.8330224H4.3167777z M5.8839421,6.2734375H0.9277854
c-0.2350746,0-0.4113806,0.1763058-0.4113806,0.3983207c0,0.2285452,0.176306,0.404851,0.4113806,0.404851h4.9561567
c0.2285447,0,0.3983207-0.1763058,0.3983207-0.404851C6.2822628,6.4497433,6.1124868,6.2734375,5.8839421,6.2734375z
M5.8839421,8.5523558H0.9277854c-0.2350746,0-0.4113806,0.1828356-0.4113806,0.4113798

c0,0.2220154,0.176306,0.3917913,0.4113806,0.3917913h4.9561567c0.2285447,0,0.3983207-0.169776,0.3983207-0.3917913

C6.2822628,8.7351913,6.1124868,8.5523558,5.8839421,8.5523558z"></path></g></svg> <!----> 69 of 74 symbols inside <a data-v-354ee602="" href="/documentation/xcode/improving-build-efficiency-with-good-coding-practices" class="leaf-link" id="-284127384" tabindex="-1" aria-describedby="label--284127384 <root> usage--284127384"> Improving Build Efficiency with Good Coding Practices <!----> To navigate the symbols, press Up Arrow, Down Arrow, Left Arrow or Right Arrow <!----> <svg data-v-7f60a732="" data-v-7334d1b4="" aria-hidden="true" xmlns="http://www.w3.org/2000/svg" class="svg-icon article-icon icon-inline"

viewBox="0 0 14 14"><g data-v-7f60a732="" transform="translate(3.616699, 1.608398)"><path data-v-7f60a732="" d="M0.0136063,12.3984375H6.948308c1.3516788,0,2.0242538-0.6856346,2.0242538-2.0438433V4.4254899
c0-0.842351-0.0979481-1.2080226-0.6203365-1.7434704L4.7542777-0.9812267
C4.2580094-1.490555,3.8466287-1.6015625,3.1152854-1.6015625H0.0136063c-1.3451493,0-2.0242538,0.6921641-2.0242538,2.0503731
v9.9057837C-2.0106475,11.7193327-1.3380729,12.3984375,0.0136063,12.3984375z M0.0593152,11.3471317
c-0.6725746,0-1.0186567-0.3591423-1.0186567-1.0121269V0.4684002c0-0.6464552,0.346082-1.0186567,1.0251865-1.0186567h2.9057837

v3.7938433c0,0.8227613,0.4113805,1.2276118,1.227612,1.2276118h3.7220149v5.8638062
c0,0.6529846-0.3460822,1.0121269-1.0251865,1.0121269H0.0593152z M4.3167777,3.4851911
c-0.2611938,0-0.3591416-0.1044776-0.3591416-0.3656716v-3.4673507l3.761194,3.8330224H4.3167777z M5.8839421,6.2734375H0.9277854
c-0.2350746,0-0.4113806,0.1763058-0.4113806,0.3983207c0,0.2285452,0.176306,0.404851,0.4113806,0.404851h4.9561567
c0.2285447,0,0.3983207-0.1763058,0.3983207-0.404851C6.2822628,6.4497433,6.1124868,6.2734375,5.8839421,6.2734375z
M5.8839421,8.5523558H0.9277854c-0.2350746,0-0.4113806,0.1828356-0.4113806,0.4113798

c0,0.2220154,0.176306,0.3917913,0.4113806,0.3917913h4.9561567c0.2285447,0,0.3983207-0.169776,0.3983207-0.3917913

C6.2822628,8.7351913,6.1124868,8.5523558,5.8839421,8.5523558z"></path></g></svg> <!----> 70 of 74 symbols inside <a data-v-354ee602="" href="/documentation/xcode/reduce-terminations-in-your-app" class="leaf-link" id="-2052099492" tabindex="-1" aria-describedby="label--2052099492 <root> usage--2052099492"> Reducing Terminations in Your App <!----> To navigate the symbols, press Up Arrow, Down Arrow, Left Arrow or Right Arrow <!----> <svg data-v-7f60a732="" data-v-7334d1b4="" aria-hidden="true" xmlns="http://www.w3.org/2000/svg" class="svg-icon curly-brackets-icon icon-inline" viewBox="0 0 14 14"><g data-v-7f60a732="" transform="translate(-2.000000, -1.000000)"><g data-v-7f60a732="" transform="translate(2.616699, 1.948730)"><path data-v-7f60a732=""

d="M0.0714366,6.0411005c0,0.3932204,0.2237288,0.6711864,0.6915254,0.7457628

C1.60364,6.9156766,1.9358432,7.3427954,1.9358432,8.4343204v1.9050856c0,1.8440676,0.840678,2.7118635,2.6711862,2.7118635
c0.1084747,0,0.2237291-0.0203381,0.3050852-0.0474567c0.2101693-0.0881357,0.3254237-0.2576275,0.3254237-0.4813566
c0-0.2644062-0.1152544-0.3999996-0.3525424-0.4610167c-0.0677967-0.0135593-0.1355934-0.0271187-0.2169495-0.0338984
c-1.1389828-0.081356-1.552542-0.5694914-1.552542-1.8237286V7.9529648c0-1.1457624-0.60339-1.7830505-1.6610171-1.8847456
c-0.020339,0-0.020339-0.0271187,0-0.0271187c1.0576271-0.1016951,1.6610171-0.7389832,1.6610171-1.8847456V1.8987277
c0-1.261017,0.4135592-1.7355932,1.552542-1.8169491c0.1084747-0.0067797,0.2033901-0.020339,0.2711868-0.0474576
c0.19661-0.0677966,0.298305-0.2169491,0.298305-0.4542373s-0.1220341-0.4-0.3525424-0.4813559
C4.7833009-0.9351707,4.6748261-0.94873,4.5392332-0.94873c-1.7694914,0-2.6033897,0.8813559-2.6033897,2.7118645v1.9118643
c0,1.0779662-0.3322033,1.5118647-1.1728812,1.6406779C0.2951654,5.3902531,0.0714366,5.6546597,0.0714366,6.0411005z
M12.6951647,6.0411005c0-0.3864408-0.2305079-0.6508474-0.6983051-0.7254238
c-0.8338976-0.1288133-1.1728811-0.5627117-1.1728811-1.6406779V1.7631344c0-1.8305085-0.8338985-2.7118645-2.6033897-2.7118645
c-0.1355934,0-0.2372875,0.0135593-0.3389826,0.0474576C7.6375384-0.8199164,7.522284-0.6572046,7.522284-0.4199165

s0.1152544,0.379661,0.3050847,0.4542373c0.0677967,0.0271186,0.1559324,0.040678,0.2644062,0.0474576

C9.223979,0.1360157,9.6510973,0.6377106,9.6510973,1.8987275v2.2576275c0,1.1525421,0.6033897,1.8847456,1.6542368,1.8847456
c0.020339,0,0.020339,0.0271187,0,0.0271187c-1.0508471,0-1.6542368,0.7322035-1.6542368,1.8847456v2.2508478
c0,1.2542372-0.4203396,1.7423725-1.5593224,1.8237286c-0.0813551,0.0067797-0.1423721,0.020339-0.2101688,0.0338984

C7.6443181,12.1088972,7.522284,12.25805,7.522284,12.5224562c0,0.2372885,0.1288137,0.4135599,0.3322034,0.4813566

c0.081356,0.0271187,0.1898308,0.0474567,0.2983046,0.0474567c1.8305082,0,2.6711864-0.8677959,2.6711864-2.7118635V8.4343204
c0-1.0915251,0.3389835-1.5186439,1.1728811-1.6474571C12.4646568,6.7122869,12.6951647,6.4343209,12.6951647,6.0411005z"></path></g></g></svg> <!----> 72 of 74 symbols inside <a data-v-354ee602="" href="/documentation/metrickit/improving_your_app_s_performance/creating_custom_modelers_for_intelligent_instruments" class="leaf-link" id="-1181436085" tabindex="-1" aria-describedby="label--1181436085 <root> usage--1181436085"><p data-v-53c78ce5="" data-v-354ee602=""

class="highlight">Creating Custom Modelers for Intelligent Instruments</p><!----> <!----> <object aria-hidden="true" tabindex="-1" type="text/html" data="about:blank"></object> 85 items were found. Tab back to navigate through them.
<button data-v-2a33cdf4="" aria-hidden="true" tabindex="-1" class="filter__filter-button"><svg data-v-7f60a732="" data-v-2a33cdf4="" aria-hidden="true" xmlns="http://www.w3.org/2000/svg" class="svg-icon filter-icon" height="21" width="21" viewBox="0 0 41 41" fill="currentColor"><path data-v-7f60a732="" d="M20.8.3a20,20,0,0,1,0,40,20.1,20.1,0,0,1-20-20A20.2,20.2,0,0,1,20.8.3Zm0,2.6a17.4,17.4,0,0,0,0,34.8A17.2,17.2,0,0,0,38.2,20.3,17.3,17.3,0,0,0,20.8,2.9Z"></path><path data-v-7f60a732="" d="M31.9,16a1.1,1.1,0,0,0,1.2-1.1,1.1,1.1,0,0,0-1.2-1.1H9.8a1.1,1.1,0,0,0-1.2,1.1A1.1,1.1,0,0,0,9.8,16Z"></path><path data-v-7f60a732="" d="M29,22.6a1,1,0,0,0,1.1-1.1A1.1,1.1,0,0,0,29,20.4H12.7a1.1,1.1,0,0,0-1.2,1.1,1.1,1.1,0,0,0,1.2,1.1Z"></path><path data-v-7f60a732="" d="M25.9,29.2a1.1,1.1,0,0,0,1.2-1.1A1.1,1.1,0,0,0,25.9,27H15.8a1.1,1.1,0,0,0-1.2,1.1,1.1,1.1,0,0,0,1.2,1.1Z"></path></svg></button> <!----><label data-v-2a33cdf4="" id="filter-label" for="filter-input" data-value="" aria-label="Filter" class="filter__input-label"><input data-v-2a33cdf4="" id="filter-input" placeholder="Filter" aria-expanded="false" type="text" autocorrect="off" autocapitalize="off" spellcheck="false" role="combobox" aria-haspopup="true" aria-autocomplete="none" aria-owns="suggestedTags" aria-controls="suggestedTags" class="filter__input"></label> <!----> <!----> Navigator is ready
</nav> <main data-v-09dcf724="" id="main" role="main" tabindex="0" class="main"> <svg data-v-7f60a732="" data-v-7334d1b4="" aria-hidden="true" xmlns="http://www.w3.org/2000/svg" class="svg-icon technology-icon icon-inline" viewBox="0 0 14 14" style="color: var(--color-type-icon-sky);"><path data-v-7f60a732="" d="M7.8697901,7.5076151c0.3033504-0.0841899,0.6352901-0.2080202,0.9958096-0.37149l4.1602001-1.8998199
c0.3688602-0.1664901,0.6234398-0.3512802,0.7637501-0.5544C13.9298496,4.4787951,14,4.2683754,14,4.0506454
c0-0.22053-0.0705004-0.43241-0.2115097-0.6356201c-0.1409998-0.2032199-0.3952398-0.3880701-0.7627001-0.5545499

L8.8394203,0.9567549c-0.3413801-0.15478-0.6630497-0.27391-0.9650002-0.3574
c-0.30195-0.08349-0.5937901-0.12523-0.8755198-0.12523c-0.2802601,0-0.5713601,0.04174-0.8733101,0.12523
s-0.6236501,0.20262-0.9651098,0.3574L0.96737,2.8604748C0.60138,3.0269649,0.34866,3.2118149,0.2092,3.4150248

C0.06974,3.6182446,0.00001,3.8301148,0.00001,4.0506449c0,0.21773,0.06936,0.4281502,0.20809,0.6312599

c0.13873,0.2031102,0.39182,0.3879099,0.75928,0.5544l4.1669302,1.8998199

c0.3575001,0.1634698,0.6883402,0.2873001,0.9924998,0.37149C6.4075699,7.5853248,6.6768699,7.6258545,6.93469,7.6292048

l0.06422,0.0000601C7.2761497,7.6323447,7.5664501,7.591795,7.8698001,7.5076046L7.8697901,7.5076151z M7.9427099,10.4403152
c0.3103304-0.0972996,0.61796-0.2161198,0.9228897-0.3564501l4.1602001-1.8972998
c0.3688602-0.1664906,0.6226702-0.3543501,0.7614298-0.5636001S13.9969091,7.2056656,14,6.9988055
c-0.0030804-0.1659899-0.0474195-0.3269601-0.1330099-0.4828901c-0.0855904-0.1559401-0.2246704-0.2995501-0.4172297-0.43085
l-4.25284,1.9320998c-0.43398,0.1982393-0.8263798,0.3429403-1.1771898,0.4341097
C7.6689205,8.5424356,7.3286405,8.5857754,6.9989004,8.581295c-0.32968,0.0044899-0.66959-0.0388498-1.0197301-0.1300201
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c0.13873,0.20925,0.39028,0.39711,0.75465,0.5636005l4.1669302,1.8972998

c0.3019199,0.1403399,0.6088099,0.25916,0.92068,0.3564501c0.3118701,0.0972996,0.6265101,0.1436996,0.9439201,0.1392202
C7.3177805,10.5840254,7.6323805,10.5376158,7.9427099,10.4403152z M7.9404001,13.3840055
c0.3087902-0.0988798,0.6156397-0.2168999,0.9205799-0.3540897l4.1602001-1.8974104
c0.3658504-0.1633997,0.6189003-0.3508997,0.7591696-0.5624905s0.2119398-0.4192801,0.2150297-0.6230602
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C0.3424,9.1716948,0.20318,9.3180447,0.12376,9.4746847S0.00308,9.7887449,0,9.9469547

c0.00308,0.2037802,0.07441,0.4114599,0.21398,0.6230602c0.13957,0.2115898,0.3907,0.3990898,0.75339,0.5624905

l4.1669302,1.8974104c0.3019199,0.1371803,0.6088099,0.2552099,0.92068,0.3540897

c0.3118701,0.0988703,0.6265101,0.1460695,0.9439201,0.1415796C7.3177805,13.5300751,7.6316104,13.4828749,7.9404001,13.3840055z"></path></svg> <!----> <!----><h1 data-v-91bcffaa="" class="title">Xcode<!----></h1> Build, test, and submit your app with Apple’s integrated development environment. <!----><!----> <!----><!----><!----> <h2 id="Overview">Overview</h2> Xcode consists of a suite of tools that developers use to build apps for Apple platforms. Use Xcode to manage your entire development workflow — from creating your app to testing, optimizing, and submitting it to the App Store. <picture data-v-5ed94df2=""><!----><img alt="Screenshot of MacBook Pro running Xcode that shows SwiftUI with a preview and running the app on an iPhone device." srcset="https://docs-assets.developer.apple.com/published/d151e94151622c167970f69ce8e60021/xcode-1@2x.png 2x" src="https://docs-assets.developer.apple.com/published/d151e94151622c167970f69ce8e60021/xcode-1@2x.png" width="720" height="auto"></picture> Xcode can launch its development tools, or you can launch them independently from the Xcode > Open Developer Tool menu: Use Simulator for rapid prototyping and testing your app in a simulated environment when a real device isn’t available. Simulator provides environments for iPhone, iPad, Apple Watch, and Apple TV devices with different settings, files, and operating system versions. For more information, see Simulator Help. Use Instruments to profile and analyze your app, improve performance, and find memory problems. Instruments collects data and presents the results using different tools called instruments. For more information, see Instruments Help. Use Create ML to create and train custom machine learning models for your app. See Create ML for more information. Use Reality Composer to construct 3D compositions and augmented reality (AR) experiences. See Creating 3D Content with Reality Composer for more information. <aside data-v-692ba3de="" aria-label="note" class="note"> Note Download the latest version of Xcode from the <a href="https://apps.apple.com/us/app/xcode/id497799835" data-v-

692ba3de="">Mac App Store. Download beta versions of Xcode from the
Apple
Developer website.</p></aside> <section data-v-
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data-v-1bb3e84e="" class="title">Topics</h2><div data-v-3277df5c="" data-v-
a2aafb2a="" class="contenttable-section">
class="section-title"><h3 data-v-3277df5c="" class="title">Xcode
IDE</h3> <!----><!----
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wrapper"><svg data-v-7f60a732="" data-v-9d2ba25c="" aria-hidden="true"
xmlns="http://www.w3.org/2000/svg" class="svg-icon api-reference-icon topic-
icon" viewBox="0 0 14 14"><title data-v-7f60a732="">API Reference</title><g
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2.1226318-2.116699-1.6362793
C-2.116699-1.1568749-1.7276171-0.767793-1.2412647-0.767793z
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c0.3126545,0,0.5627785-0.2431761,0.5627785-0.5558312c0-0.319603-
0.250124-0.5627792-0.5627785-0.5627792H1.829703
c-0.319603,0-0.5627792,0.2431762-0.5627792,0.5627792C1.2669238-
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M-1.2412647,3.4356809c0.4863523,0,0.8754342-0.3890817,0.8754342-
0.8754342s-0.3890819-0.8754343-0.8754342-0.8754343
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1.2412647,3.4356809z M1.829703,3.1230259h9.490819
c0.3126545,0,0.5627785-0.2501242,0.5627785-0.5627792s-0.250124-
0.5558312-0.5627785-0.5558312H1.829703
c-0.319603,0-0.5627792,0.243176-
0.5627792,0.5558312S1.5101,3.1230259,1.829703,3.1230259z M-
1.2412647,7.6391549
c0.4863523,0,0.8754342-0.3960299,0.8754342-0.8754344c0-0.4863524-
0.3890819-0.8754339-0.8754342-0.8754339
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1.7276171,7.6391549-1.2412647,7.6391549z M1.829703,7.3195519
h9.490819c0.3126545,0,0.5627785-0.2431765,0.5627785-0.5558314c0-
0.319603-0.250124-0.5627789-0.5627785-0.5627789H1.829703
c-0.319603,0-0.5627792,0.243176-
0.5627792,0.5627789C1.2669238,7.0763755,1.5101,7.3195519,1.829703,7.319
5519z"></path></g></svg> Projects and
Workspaces<!----><div data-v-39207972=""
class="abstract"><div data-v-702ae484="" data-v-39207972=""
class="content">Manage the code and resources you use to build apps,
libraries, and other software for Apple
platforms. <!----><!----><!----> <!----> <div data-v-
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3277df5c=""><a data-v-39207972="" href="/documentation/xcode/capabilities"
class="link has-adjacent-elements"><div data-v-9d2ba25c="" data-v-
39207972="" class="topic-icon-wrapper"><svg data-v-7f60a732="" data-v-

9d2ba25c="" aria-hidden="true" xmlns="http://www.w3.org/2000/svg" class="svg-icon api-reference-icon topic-icon" viewBox="0 0 14 14"><title data-v-7f60a732="">API Reference</title><g data-v-7f60a732="" transform="translate(2.116699, 4.455566)"><path data-v-7f60a732="" d="M-1.2412647-0.767793c0.4863523,0,0.8754342-0.3890819,0.8754342-0.8684863
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C-2.116699-1.1568749-1.7276171-0.767793-1.2412647-0.767793z M1.829703-1.0804482h9.490819
c0.3126545,0,0.5627785-0.2431761,0.5627785-0.5558312c0-0.319603-0.250124-0.5627792-0.5627785-0.5627792H1.829703
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M-1.2412647,3.4356809c0.4863523,0,0.8754342-0.3890817,0.8754342-0.8754342s-0.3890819-0.8754343-0.8754342-0.8754343
S-2.116699,2.0738943-2.116699,2.5602467S-1.7276171,3.4356809-1.2412647,3.4356809z M1.829703,3.1230259h9.490819
c0.3126545,0,0.5627785-0.2501242,0.5627785-0.5627792s-0.250124-0.5558312-0.5627785-0.5558312H1.829703
c-0.319603,0-0.5627792,0.243176-0.5627792,0.5558312S1.5101,3.1230259,1.829703,3.1230259z M-1.2412647,7.6391549
c0.4863523,0,0.8754342-0.3960299,0.8754342-0.8754344c0-0.4863524-0.3890819-0.8754339-0.8754342-0.8754339
S-2.116699,6.2773681-2.116699,6.7637205C-2.116699,7.243125-1.7276171,7.6391549-1.2412647,7.6391549z M1.829703,7.3195519
h9.490819c0.3126545,0,0.5627785-0.2431765,0.5627785-0.5558314c0-0.319603-0.250124-0.5627789-0.5627785-0.5627789H1.829703
c-0.319603,0-0.5627792,0.243176-0.5627792,0.5627789C1.2669238,7.0763755,1.5101,7.3195519,1.829703,7.3195519z"></path></g></svg> Capabilities<!----> Enable services that Apple provides, such as in-app purchase, push notifications, Apple Pay, CloudKit, and many others. <!----><!----><!----> <!----> <h3 data-v-3277df5c="" class="title">Code</h3> <!----><!----><!----> <a data-v-39207972="" href="/documentation/Apple-Silicon/porting-your-macos-apps-to-apple-silicon" class="link has-adjacent-elements"> <svg data-v-7f60a732="" data-v-9d2ba25c="" aria-hidden="true" xmlns="http://www.w3.org/2000/svg" class="svg-icon article-icon topic-icon" viewBox="0 0 14 14"><g data-v-7f60a732="" transform="translate(3.616699, 1.608398)"><path data-v-7f60a732="" d="M0.0136063,12.3984375H6.948308c1.3516788,0,2.0242538-0.6856346,2.0242538-2.0438433V4.4254899
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9v5.8638062
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9561567
c0.2285447,0,0.3983207-0.1763058,0.3983207-
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0.4113806,0.4113798

c0,0.2220154,0.176306,0.3917913,0.4113806,0.3917913h4.9561567c0.228544
7,0,0.3983207-0.169776,0.3983207-0.3917913

C6.2822628,8.7351913,6.1124868,8.5523558,5.8839421,8.5523558z"></path>
</g></svg> Porting Your mac<wbr data-v-
39207972="">OS Apps to Apple Silicon<!----><div data-v-
39207972="" class="abstract"><div data-v-702ae484="" data-v-39207972=""
class="content">Create a version of your macOS app that runs on both Apple
silicon and Intel-based Mac computers. <!----><!----><!----> <!----
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hidden="true" xmlns="http://www.w3.org/2000/svg" class="svg-icon article-icon
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0.9812267
C4.2580094-1.490555,3.8466287-1.6015625,3.1152854-
1.6015625H0.0136063c-1.3451493,0-2.0242538,0.6921641-
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v9.9057837C-2.0106475,11.7193327-
1.3380729,12.3984375,0.0136063,12.3984375z M0.0593152,11.3471317
c-0.6725746,0-1.0186567-0.3591423-1.0186567-1.0121269V0.4684002c0-
0.6464552,0.346082-1.0186567,1.0251865-1.0186567h2.9057837

v3.7938433c0,0.8227613,0.4113805,1.2276118,1.227612,1.2276118h3.722014
9v5.8638062
c0,0.6529846-0.3460822,1.0121269-1.0251865,1.0121269H0.0593152z
M4.3167777,3.4851911

c-0.2611938,0-0.3591416-0.1044776-0.3591416-0.3656716v-3.4673507l3.761194,3.8330224H4.3167777z M5.8839421,6.2734375H0.9277854
c-0.2350746,0-0.4113806,0.1763058-0.4113806,0.3983207c0,0.2285452,0.176306,0.404851,0.4113806,0.404851h4.9561567
c0.2285447,0,0.3983207-0.1763058,0.3983207-0.404851C6.2822628,6.4497433,6.1124868,6.2734375,5.8839421,6.2734375z
M5.8839421,8.5523558H0.9277854c-0.2350746,0-0.4113806,0.1828356-0.4113806,0.4113798

c0,0.2220154,0.176306,0.3917913,0.4113806,0.3917913h4.9561567c0.2285447,0,0.3983207-0.169776,0.3983207-0.3917913

C6.2822628,8.7351913,6.1124868,8.5523558,5.8839421,8.5523558z"></path></g></svg> Finding and Refactoring Code<!----> Search your code for text, patterns, and symbols that you can refactor quickly and easily. <!----><!----><!----> <!----> <a data-v-39207972="" href="/documentation/xcode/fixing-issues-in-your-code-as-you-type" class="link has-adjacent-elements"> <svg data-v-7f60a732="" data-v-9d2ba25c="" aria-hidden="true" xmlns="http://www.w3.org/2000/svg" class="svg-icon article-icon topic-icon" viewBox="0 0 14 14"><g data-v-7f60a732="" transform="translate(3.616699, 1.608398)"><path data-v-7f60a732="" d="M0.0136063,12.3984375H6.948308c1.3516788,0,2.0242538-0.6856346,2.0242538-2.0438433V4.4254899
c0-0.842351-0.0979481-1.2080226-0.6203365-1.7434704L4.7542777-0.9812267
C4.2580094-1.490555,3.8466287-1.6015625,3.1152854-1.6015625H0.0136063c-1.3451493,0-2.0242538,0.6921641-2.0242538,2.0503731
v9.9057837C-2.0106475,11.7193327-1.3380729,12.3984375,0.0136063,12.3984375z M0.0593152,11.3471317
c-0.6725746,0-1.0186567-0.3591423-1.0186567-1.0121269V0.4684002c0-0.6464552,0.346082-1.0186567,1.0251865-1.0186567h2.9057837

v3.7938433c0,0.8227613,0.4113805,1.2276118,1.227612,1.2276118h3.7220149v5.8638062
c0,0.6529846-0.3460822,1.0121269-1.0251865,1.0121269H0.0593152z M4.3167777,3.4851911
c-0.2611938,0-0.3591416-0.1044776-0.3591416-0.3656716v-3.4673507l3.761194,3.8330224H4.3167777z M5.8839421,6.2734375H0.9277854
c-0.2350746,0-0.4113806,0.1763058-0.4113806,0.3983207c0,0.2285452,0.176306,0.404851,0.4113806,0.404851h4.9561567
c0.2285447,0,0.3983207-0.1763058,0.3983207-0.404851C6.2822628,6.4497433,6.1124868,6.2734375,5.8839421,6.2734375z
M5.8839421,8.5523558H0.9277854c-0.2350746,0-0.4113806,0.1828356-0.4113806,0.4113798

c0,0.2220154,0.176306,0.3917913,0.4113806,0.3917913h4.9561567c0.2285447,0,0.3983207-0.169776,0.3983207-0.3917913

C6.2822628,8.7351913,6.1124868,8.5523558,5.8839421,8.5523558z"></path></g></svg> Fixing Issues in Your Code as You Type<!----> Minimize typing-related errors using code completion, and let Xcode fix common mistakes for you. <!----><!----><!----> <!----> <a data-v-39207972="" href="/documentation/xcode/build-system" class="link has-adjacent-elements"> <svg data-v-7f60a732="" data-v-9d2ba25c="" aria-hidden="true" xmlns="http://www.w3.org/2000/svg" class="svg-icon api-reference-icon topic-icon" viewBox="0 0 14 14"><title data-v-7f60a732="">API Reference</title><g data-v-7f60a732="" transform="translate(2.116699, 4.455566)"><path data-v-7f60a732="" d="M-1.2412647-0.767793c0.4863523,0,0.8754342-0.3890819,0.8754342-0.8684863
c0-0.4863524-0.3890819-0.8754342-0.8754342-0.8754342S-2.116699-2.1226318-2.116699-1.6362793
C-2.116699-1.1568749-1.7276171-0.767793-1.2412647-0.767793z M1.829703-1.0804482h9.490819
c0.3126545,0,0.5627785-0.2431761,0.5627785-0.5558312c0-0.319603-0.250124-0.5627792-0.5627785-0.5627792H1.829703
c-0.319603,0-0.5627792,0.2431762-0.5627792,0.5627792C1.2669238-1.3236243,1.5101-1.0804482,1.829703-1.0804482z
M-1.2412647,3.4356809c0.4863523,0,0.8754342-0.3890817,0.8754342-0.8754342s-0.3890819-0.8754343-0.8754342-0.8754343
S-2.116699,2.0738943-2.116699,2.5602467S-1.7276171,3.4356809-1.2412647,3.4356809z M1.829703,3.1230259h9.490819
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c-0.319603,0-0.5627792,0.243176-0.5627792,0.5558312S1.5101,3.1230259,1.829703,3.1230259z M-1.2412647,7.6391549
c0.4863523,0,0.8754342-0.3960299,0.8754342-0.8754344c0-0.4863524-0.3890819-0.8754339-0.8754342-0.8754339
S-2.116699,6.2773681-2.116699,6.7637205C-2.116699,7.243125-1.7276171,7.6391549-1.2412647,7.6391549z M1.829703,7.3195519
h9.490819c0.3126545,0,0.5627785-0.2431765,0.5627785-0.5558314c0-0.319603-0.250124-0.5627789-0.5627785-0.5627789H1.829703
c-0.319603,0-0.5627792,0.243176-0.5627792,0.5627789C1.2669238,7.0763755,1.5101,7.3195519,1.829703,7.3195519z"></path></g></svg> Build System<!----> Compile your code into a binary format, and customize your project settings to build your code. <!----><!----><!----> <!----> <a data-v-39207972="" href="/documentation/xcode/application-binary-interfaces" class="link has-adjacent-elements"> <svg data-v-7f60a732="" data-v-9d2ba25c="" aria-hidden="true" xmlns="http://www.w3.org/2000/svg"

class="svg-icon api-reference-icon topic-icon" viewBox="0 0 14 14"><title data-v-7f60a732="">API Reference</title><g data-v-7f60a732="" transform="translate(2.116699, 4.455566)"><path data-v-7f60a732="" d="M-1.2412647-0.767793c0.4863523,0,0.8754342-0.3890819,0.8754342-0.8684863
c0-0.4863524-0.3890819-0.8754342-0.8754342-0.8754342S-2.116699-2.1226318-2.116699-1.6362793
C-2.116699-1.1568749-1.7276171-0.767793-1.2412647-0.767793z M1.829703-1.0804482h9.490819
c0.3126545,0,0.5627785-0.2431761,0.5627785-0.5558312c0-0.319603-0.250124-0.5627792-0.5627785-0.5627792H1.829703
c-0.319603,0-0.5627792,0.2431762-0.5627792,0.5627792C1.2669238-1.3236243,1.5101-1.0804482,1.829703-1.0804482z
M-1.2412647,3.4356809c0.4863523,0,0.8754342-0.3890817,0.8754342-0.8754342s-0.3890819-0.8754343-0.8754342-0.8754343
S-2.116699,2.0738943-2.116699,2.5602467S-1.7276171,3.4356809-1.2412647,3.4356809z M1.829703,3.1230259h9.490819
c0.3126545,0,0.5627785-0.2501242,0.5627785-0.5627792s-0.250124-0.5558312-0.5627785-0.5558312H1.829703
c-0.319603,0-0.5627792,0.243176-0.5627792,0.5558312S1.5101,3.1230259,1.829703,3.1230259z M-1.2412647,7.6391549
c0.4863523,0,0.8754342-0.3960299,0.8754342-0.8754344c0-0.4863524-0.3890819-0.8754339-0.8754342-0.8754339
S-2.116699,6.2773681-2.116699,6.7637205C-2.116699,7.243125-1.7276171,7.6391549-1.2412647,7.6391549z M1.829703,7.3195519
h9.490819c0.3126545,0,0.5627785-0.2431765,0.5627785-0.5558314c0-0.319603-0.250124-0.5627789-0.5627785-0.5627789H1.829703
c-0.319603,0-0.5627792,0.243176-0.5627792,0.5627789C1.2669238,7.0763755,1.5101,7.3195519,1.829703,7.3195519z"></path></g></svg> Application Binary Interfaces<!----> Write assembly instructions that adhere to the application binary interfaces of Apple platforms. <!----><!----><!----> <!----> <a data-v-39207972="" href="/documentation/xcode/source-control-management" class="link has-adjacent-elements"> <svg data-v-7f60a732="" data-v-9d2ba25c="" aria-hidden="true" xmlns="http://www.w3.org/2000/svg" class="svg-icon api-reference-icon topic-icon" viewBox="0 0 14 14"><title data-v-7f60a732="">API Reference</title><g data-v-7f60a732="" transform="translate(2.116699, 4.455566)"><path data-v-7f60a732="" d="M-1.2412647-0.767793c0.4863523,0,0.8754342-0.3890819,0.8754342-0.8684863
c0-0.4863524-0.3890819-0.8754342-0.8754342-0.8754342S-2.116699-2.1226318-2.116699-1.6362793
C-2.116699-1.1568749-1.7276171-0.767793-1.2412647-0.767793z M1.829703-1.0804482h9.490819
c0.3126545,0,0.5627785-0.2431761,0.5627785-0.5558312c0-0.319603-0.250124-0.5627792-0.5627785-0.5627792H1.829703
c-0.319603,0-0.5627792,0.2431762-0.5627792,0.5627792C1.2669238-1.3236243,1.5101-1.0804482,1.829703-1.0804482z
M-1.2412647,3.4356809c0.4863523,0,0.8754342-0.3890817,0.8754342-0.8754342s-0.3890819-0.8754343-0.8754342-0.8754343

S-2.116699,2.0738943-2.116699,2.5602467S-1.7276171,3.4356809-1.2412647,3.4356809z M1.829703,3.1230259h9.490819
c0.3126545,0,0.5627785-0.2501242,0.5627785-0.5627792s-0.250124-0.5558312-0.5627785-0.5558312H1.829703
c-0.319603,0-0.5627792,0.243176-0.5627792,0.5558312S1.5101,3.1230259,1.829703,3.1230259z M-1.2412647,7.6391549
c0.4863523,0,0.8754342-0.3960299,0.8754342-0.8754344c0-0.4863524-0.3890819-0.8754339-0.8754342-0.8754339
S-2.116699,6.2773681-2.116699,6.7637205C-2.116699,7.243125-1.7276171,7.6391549-1.2412647,7.6391549z M1.829703,7.3195519
h9.490819c0.3126545,0,0.5627785-0.2431765,0.5627785-0.5558314c0-0.319603-0.250124-0.5627789-0.5627785-0.5627789H1.829703
c-0.319603,0-0.5627792,0.243176-0.5627792,0.5627789C1.2669238,7.0763755,1.5101,7.3195519,1.829703,7.3195519z"></path></g></svg> Source Control Management<!----> Back up your files, collaborate with others, and tag your releases with source control support in Xcode. <!----><!----><!----> <!----> <a data-v-39207972="" href="/documentation/xcode/running-code-on-a-specific-version" class="link has-adjacent-elements"> <svg data-v-7f60a732="" data-v-9d2ba25c="" aria-hidden="true" xmlns="http://www.w3.org/2000/svg" class="svg-icon article-icon topic-icon" viewBox="0 0 14 14"><g data-v-7f60a732="" transform="translate(3.616699, 1.608398)"><path data-v-7f60a732="" d="M0.0136063,12.3984375H6.948308c1.3516788,0,2.0242538-0.6856346,2.0242538-2.0438433V4.4254899
c0-0.842351-0.0979481-1.2080226-0.6203365-1.7434704L4.7542777-0.9812267
C4.2580094-1.490555,3.8466287-1.6015625,3.1152854-1.6015625H0.0136063c-1.3451493,0-2.0242538,0.6921641-2.0242538,2.0503731
v9.9057837C-2.0106475,11.7193327-1.3380729,12.3984375,0.0136063,12.3984375z M0.0593152,11.3471317
c-0.6725746,0-1.0186567-0.3591423-1.0186567-1.0121269V0.4684002c0-0.6464552,0.346082-1.0186567,1.0251865-1.0186567h2.9057837

v3.7938433c0,0.8227613,0.4113805,1.2276118,1.227612,1.2276118h3.7220149v5.8638062
c0,0.6529846-0.3460822,1.0121269-1.0251865,1.0121269H0.0593152z M4.3167777,3.4851911
c-0.2611938,0-0.3591416-0.1044776-0.3591416-0.3656716v-3.4673507l3.761194,3.8330224H4.3167777z M5.8839421,6.2734375H0.9277854
c-0.2350746,0-0.4113806,0.1763058-0.4113806,0.3983207c0,0.2285452,0.176306,0.404851,0.4113806,0.404851h4.9561567
c0.2285447,0,0.3983207-0.1763058,0.3983207-0.404851C6.2822628,6.4497433,6.1124868,6.2734375,5.8839421,6.2734375z

M5.8839421,8.5523558H0.9277854c-0.2350746,0-0.4113806,0.1828356-0.4113806,0.4113798

c0,0.2220154,0.176306,0.3917913,0.4113806,0.3917913h4.9561567c0.2285447,0,0.3983207-0.169776,0.3983207-0.3917913

C6.2822628,8.7351913,6.1124868,8.5523558,5.8839421,8.5523558z"></path></g></svg> Running code on a specific platform or OS version<!----> Add conditional compilation markers around code that requires a particular family of devices or minimum operating system version to run. <!----><!----><!----> <!----> <h3 data-v-3277df5c="" class="title">Interface</h3> <!----><!----><!----> <a data-v-39207972="" href="/documentation/xcode/asset-management" class="link has-adjacent-elements"> <svg data-v-7f60a732="" data-v-9d2ba25c="" aria-hidden="true" xmlns="http://www.w3.org/2000/svg" class="svg-icon api-reference-icon topic-icon" viewBox="0 0 14 14"><title data-v-7f60a732="">API Reference</title><g data-v-7f60a732="" transform="translate(2.116699, 4.455566)"><path data-v-7f60a732="" d="M-1.2412647-0.767793c0.4863523,0,0.8754342-0.3890819,0.8754342-0.8684863
c0-0.4863524-0.3890819-0.8754342-0.8754342-0.8754342S-2.116699-2.1226318-2.116699-1.6362793
C-2.116699-1.1568749-1.7276171-0.767793-1.2412647-0.767793z M1.829703-1.0804482h9.490819
c0.3126545,0,0.5627785-0.2431761,0.5627785-0.5558312c0-0.319603-0.250124-0.5627792-0.5627785-0.5627792H1.829703
c-0.319603,0-0.5627792,0.2431762-0.5627792,0.5627792C1.2669238-1.3236243,1.5101-1.0804482,1.829703-1.0804482z
M-1.2412647,3.4356809c0.4863523,0,0.8754342-0.3890817,0.8754342-0.8754342s-0.3890819-0.8754343-0.8754342-0.8754343
S-2.116699,2.0738943-2.116699,2.5602467S-1.7276171,3.4356809-1.2412647,3.4356809z M1.829703,3.1230259h9.490819
c0.3126545,0,0.5627785-0.2501242,0.5627785-0.5627792s-0.250124-0.5558312-0.5627785-0.5558312H1.829703
c-0.319603,0-0.5627792,0.243176-0.5627792,0.5558312S1.5101,3.1230259,1.829703,3.1230259z M-1.2412647,7.6391549
c0.4863523,0,0.8754342-0.3960299,0.8754342-0.8754344c0-0.4863524-0.3890819-0.8754339-0.8754342-0.8754339
S-2.116699,6.2773681-2.116699,6.7637205C-2.116699,7.243125-1.7276171,7.6391549-1.2412647,7.6391549z M1.829703,7.3195519
h9.490819c0.3126545,0,0.5627785-0.2431765,0.5627785-0.5558314c0-0.319603-0.250124-0.5627789-0.5627785-0.5627789H1.829703
c-0.319603,0-0.5627792,0.243176-0.5627792,0.5627789C1.2669238,7.0763755,1.5101,7.3195519,1.829703,7.3195519z"></path></g></svg> Asset Management<!----> <div data-v-702ae484="" data-v-39207972=""

class="content">Add images, strings, data files, and other resources to your projects, and manage how you load them at runtime. <!----><!----><!----> <!----> <a data-v-39207972="" href="/documentation/xcode/creating-your-app-s-interface-with-swiftui" class="link has-adjacent-elements"> <svg data-v-7f60a732="" data-v-9d2ba25c="" aria-hidden="true" xmlns="http://www.w3.org/2000/svg" class="svg-icon article-icon topic-icon" viewBox="0 0 14 14"><g data-v-7f60a732="" transform="translate(3.616699, 1.608398)"><path data-v-7f60a732="" d="M0.0136063,12.3984375H6.948308c1.3516788,0,2.0242538-0.6856346,2.0242538-2.0438433V4.4254899
c0-0.842351-0.0979481-1.2080226-0.6203365-1.7434704L4.7542777-0.9812267
C4.2580094-1.490555,3.8466287-1.6015625,3.1152854-1.6015625H0.0136063c-1.3451493,0-2.0242538,0.6921641-2.0242538,2.0503731
v9.9057837C-2.0106475,11.7193327-1.3380729,12.3984375,0.0136063,12.3984375z M0.0593152,11.3471317
c-0.6725746,0-1.0186567-0.3591423-1.0186567-1.0121269V0.4684002c0-0.6464552,0.346082-1.0186567,1.0251865-1.0186567h2.9057837

v3.7938433c0,0.8227613,0.4113805,1.2276118,1.227612,1.2276118h3.7220149v5.8638062
c0,0.6529846-0.3460822,1.0121269-1.0251865,1.0121269H0.0593152z M4.3167777,3.4851911
c-0.2611938,0-0.3591416-0.1044776-0.3591416-0.3656716v-3.4673507l3.761194,3.8330224H4.3167777z M5.8839421,6.2734375H0.9277854
c-0.2350746,0-0.4113806,0.1763058-0.4113806,0.3983207c0,0.2285452,0.176306,0.404851,0.4113806,0.404851h4.9561567
c0.2285447,0,0.3983207-0.1763058,0.3983207-0.404851C6.2822628,6.4497433,6.1124868,6.2734375,5.8839421,6.2734375z
M5.8839421,8.5523558H0.9277854c-0.2350746,0-0.4113806,0.1828356-0.4113806,0.4113798

c0,0.2220154,0.176306,0.3917913,0.4113806,0.3917913h4.9561567c0.2285447,0,0.3983207-0.169776,0.3983207-0.3917913

C6.2822628,8.7351913,6.1124868,8.5523558,5.8839421,8.5523558z"></path></g></svg> Creating Your App’s Interface with Swift<wbr data-v-39207972="">UI<!----> Develop apps in SwiftUI with an interactive preview that keeps the code and layout in sync. <!----><!----><!----> <!----> <h3 data-v-3277df5c="" class="title">Localization</h3> <!----><!----><!----> <a data-v-39207972="" href="/documentation/xcode/localization" class="link has-adjacent-elements"><div data-v-9d2ba25c="" data-v-39207972="" class="topic-icon-

wrapper"><svg data-v-7f60a732="" data-v-9d2ba25c="" aria-hidden="true" xmlns="http://www.w3.org/2000/svg" class="svg-icon api-reference-icon topic-icon" viewBox="0 0 14 14"><title data-v-7f60a732="">API Reference</title><g data-v-7f60a732="" transform="translate(2.116699, 4.455566)"><path data-v-7f60a732="" d="M-1.2412647-0.767793c0.4863523,0,0.8754342-0.3890819,0.8754342-0.8684863
c0-0.4863524-0.3890819-0.8754342-0.8754342-0.8754342S-2.116699-2.1226318-2.116699-1.6362793
C-2.116699-1.1568749-1.7276171-0.767793-1.2412647-0.767793z M1.829703-1.0804482h9.490819
c0.3126545,0,0.5627785-0.2431761,0.5627785-0.5558312c0-0.319603-0.250124-0.5627792-0.5627785-0.5627792H1.829703
c-0.319603,0-0.5627792,0.2431762-0.5627792,0.5627792C1.2669238-1.3236243,1.5101-1.0804482,1.829703-1.0804482z
M-1.2412647,3.4356809c0.4863523,0,0.8754342-0.3890817,0.8754342-0.8754342s-0.3890819-0.8754343-0.8754342-0.8754343
S-2.116699,2.0738943-2.116699,2.5602467S-1.7276171,3.4356809-1.2412647,3.4356809z M1.829703,3.1230259h9.490819
c0.3126545,0,0.5627785-0.2501242,0.5627785-0.5627792s-0.250124-0.5558312-0.5627785-0.5558312H1.829703
c-0.319603,0-0.5627792,0.243176-0.5627792,0.5558312S1.5101,3.1230259,1.829703,3.1230259z M-1.2412647,7.6391549
c0.4863523,0,0.8754342-0.3960299,0.8754342-0.8754344c0-0.4863524-0.3890819-0.8754339-0.8754342-0.8754339
S-2.116699,6.2773681-2.116699,6.7637205C-2.116699,7.243125-1.7276171,7.6391549-1.2412647,7.6391549z M1.829703,7.3195519
h9.490819c0.3126545,0,0.5627785-0.2431765,0.5627785-0.5558314c0-0.319603-0.250124-0.5627789-0.5627785-0.5627789H1.829703
c-0.319603,0-0.5627792,0.243176-0.5627792,0.5627789C1.2669238,7.0763755,1.5101,7.3195519,1.829703,7.3195519z"></path></g></svg> Localization<!----> Expand the market for your app by supporting multiple languages and regions. <!----><!----><!----> <!----> <a data-v-39207972="" href="/documentation/xcode/autosizing_views_for_localization_in_ios" class="link has-adjacent-elements"> <svg data-v-7f60a732="" data-v-9d2ba25c="" aria-hidden="true" xmlns="http://www.w3.org/2000/svg" class="svg-icon curly-brackets-icon topic-icon" viewBox="0 0 14 14"><g data-v-7f60a732="" transform="translate(-2.000000, -1.000000)"><g data-v-7f60a732="" transform="translate(2.616699, 1.948730)"><path data-v-7f60a732="" d="M0.0714366,6.0411005c0,0.3932204,0.2237288,0.6711864,0.6915254,0.7457628

C1.60364,6.9156766,1.9358432,7.3427954,1.9358432,8.4343204v1.9050856c0,1.8440676,0.840678,2.7118635,2.6711862,2.7118635
c0.1084747,0,0.2237291-0.0203381,0.3050852-0.0474567c0.2101693-0.0881357,0.3254237-0.2576275,0.3254237-0.4813566

c0-0.2644062-0.1152544-0.3999996-0.3525424-0.4610167c-0.0677967-0.0135593-0.1355934-0.0271187-0.2169495-0.0338984
c-1.1389828-0.081356-1.552542-0.5694914-1.552542-1.8237286V7.9529648c0-1.1457624-0.60339-1.7830505-1.6610171-1.8847456
c-0.020339,0-0.020339-0.0271187,0-0.0271187c1.0576271-0.1016951,1.6610171-0.7389832,1.6610171-1.8847456V1.8987277
c0-1.261017,0.4135592-1.7355932,1.552542-1.8169491c0.1084747-0.0067797,0.2033901-0.020339,0.2711868-0.0474576
c0.19661-0.0677966,0.298305-0.2169491,0.298305-0.4542373s-0.1220341-0.4-0.3525424-0.4813559
C4.7833009-0.9351707,4.6748261-0.94873,4.5392332-0.94873c-1.7694914,0-2.6033897,0.8813559-2.6033897,2.7118645v1.9118643
c0,1.0779662-0.3322033,1.5118647-1.1728812,1.6406779C0.2951654,5.3902531,0.0714366,5.6546597,0.0714366,6.0411005z
M12.6951647,6.0411005c0-0.3864408-0.2305079-0.6508474-0.6983051-0.7254238
c-0.8338976-0.1288133-1.1728811-0.5627117-1.1728811-1.6406779V1.7631344c0-1.8305085-0.8338985-2.7118645-2.6033897-2.7118645
c-0.1355934,0-0.2372875,0.0135593-0.3389826,0.0474576C7.6375384-0.8199164,7.522284-0.6572046,7.522284-0.4199165

s0.1152544,0.379661,0.3050847,0.4542373c0.0677967,0.0271186,0.1559324,0.040678,0.2644062,0.0474576

C9.223979,0.1360157,9.6510973,0.6377106,9.6510973,1.8987275v2.2576275c0,1.1525421,0.6033897,1.8847456,1.6542368,1.8847456
c0.020339,0,0.020339,0.0271187,0,0.0271187c-1.0508471,0-1.6542368,0.7322035-1.6542368,1.8847456v2.2508478
c0,1.2542372-0.4203396,1.7423725-1.5593224,1.8237286c-0.0813551,0.0067797-0.1423721,0.020339-0.2101688,0.0338984

C7.6443181,12.1088972,7.522284,12.25805,7.522284,12.5224562c0,0.2372885,0.1288137,0.4135599,0.3322034,0.4813566

c0.081356,0.0271187,0.1898308,0.0474567,0.2983046,0.0474567c1.8305082,0,2.6711864-0.8677959,2.6711864-2.7118635V8.4343204
c0-1.0915251,0.3389835-1.5186439,1.1728811-1.6474571C12.4646568,6.7122869,12.6951647,6.4343209,12.6951647,6.0411005z"></path></g></g></svg> Autosizing Views for Localization in i<wbr data-v-39207972="">OS<!----> Add auto layout constraints to your app to achieve localizable views. <!----><!----><!----> <!----> <a data-v-39207972="" href="/documentation/xcode/localization-friendly_layouts_in_macos" class="link has-adjacent-elements"> <svg data-v-7f60a732="" data-v-9d2ba25c="" aria-hidden="true" xmlns="http://www.w3.org/2000/svg" class="svg-icon curly-brackets-icon topic-icon" viewBox="0 0 14 14"><g data-v-7f60a732="" transform="translate(-2.000000, -1.000000)"><g data-v-7f60a732="" transform="translate(2.616699,

1.948730)"><path data-v-7f60a732=""
d="M0.0714366,6.0411005c0,0.3932204,0.2237288,0.6711864,0.6915254,0.74
57628

C1.60364,6.9156766,1.9358432,7.3427954,1.9358432,8.4343204v1.9050856c0,
1.8440676,0.840678,2.7118635,2.6711862,2.7118635
c0.1084747,0,0.2237291-0.0203381,0.3050852-0.0474567c0.2101693-
0.0881357,0.3254237-0.2576275,0.3254237-0.4813566
c0-0.2644062-0.1152544-0.3999996-0.3525424-0.4610167c-0.0677967-
0.0135593-0.1355934-0.0271187-0.2169495-0.0338984
c-1.1389828-0.081356-1.552542-0.5694914-1.552542-
1.8237286V7.9529648c0-1.1457624-0.60339-1.7830505-1.6610171-1.8847456
c-0.020339,0-0.020339-0.0271187,0-0.0271187c1.0576271-
0.1016951,1.6610171-0.7389832,1.6610171-1.8847456V1.8987277
c0-1.261017,0.4135592-1.7355932,1.552542-1.8169491c0.1084747-
0.0067797,0.2033901-0.020339,0.2711868-0.0474576
c0.19661-0.0677966,0.298305-0.2169491,0.298305-0.4542373s-
0.1220341-0.4-0.3525424-0.4813559
C4.7833009-0.9351707,4.6748261-0.94873,4.5392332-0.94873c-
1.7694914,0-2.6033897,0.8813559-2.6033897,2.7118645v1.9118643
c0,1.0779662-0.3322033,1.5118647-
1.1728812,1.6406779C0.2951654,5.3902531,0.0714366,5.6546597,0.0714366,
6.0411005z
M12.6951647,6.0411005c0-0.3864408-0.2305079-0.6508474-0.6983051-
0.7254238
c-0.8338976-0.1288133-1.1728811-0.5627117-1.1728811-
1.6406779V1.7631344c0-1.8305085-0.8338985-2.7118645-2.6033897-
2.7118645
c-0.1355934,0-0.2372875,0.0135593-0.3389826,0.0474576C7.6375384-
0.8199164,7.522284-0.6572046,7.522284-0.4199165

s0.1152544,0.379661,0.3050847,0.4542373c0.0677967,0.0271186,0.1559324,0
.040678,0.2644062,0.0474576

C9.223979,0.1360157,9.6510973,0.6377106,9.6510973,1.8987275v2.2576275c
0,1.1525421,0.6033897,1.8847456,1.6542368,1.8847456
c0.020339,0,0.020339,0.0271187,0,0.0271187c-1.0508471,0-
1.6542368,0.7322035-1.6542368,1.8847456v2.2508478
c0,1.2542372-0.4203396,1.7423725-1.5593224,1.8237286c-
0.0813551,0.0067797-0.1423721,0.020339-0.2101688,0.0338984

C7.6443181,12.1088972,7.522284,12.25805,7.522284,12.5224562c0,0.2372885
,0.1288137,0.4135599,0.3322034,0.4813566

c0.081356,0.0271187,0.1898308,0.0474567,0.2983046,0.0474567c1.8305082,0
,2.6711864-0.8677959,2.6711864-2.7118635V8.4343204
c0-1.0915251,0.3389835-1.5186439,1.1728811-
1.6474571C12.4646568,6.7122869,12.6951647,6.4343209,12.6951647,6.04110
05z"></path></g></g></svg> <span data-v-
39207972="">Localization-Friendly Layouts in mac<wbr data-v-
39207972="">OS<!----><div data-v-39207972=""
class="abstract"><div data-v-702ae484="" data-v-39207972=""
class="content">This project demonstrates localization-friendly auto layout
constraints. It uses <code data-v-88c637be="">NSGrid<wbr data-v-

88c637be="">View</code> as a container view to achieve localized layouts. <!----><!----><!----> <!----> <h3 data-v-3277df5c="" class="title">Project Configuration</h3> <!----><!----><!----> <a data-v-39207972="" href="/documentation/Apple-Silicon/building-a-universal-macos-binary" class="link has-adjacent-elements"> <svg data-v-7f60a732="" data-v-9d2ba25c="" aria-hidden="true" xmlns="http://www.w3.org/2000/svg" class="svg-icon article-icon topic-icon" viewBox="0 0 14 14"><g data-v-7f60a732="" transform="translate(3.616699, 1.608398)"><path data-v-7f60a732="" d="M0.0136063,12.3984375H6.948308c1.3516788,0,2.0242538-0.6856346,2.0242538-2.0438433V4.4254899
c0-0.842351-0.0979481-1.2080226-0.6203365-1.7434704L4.7542777-0.9812267
C4.2580094-1.490555,3.8466287-1.6015625,3.1152854-1.6015625H0.0136063c-1.3451493,0-2.0242538,0.6921641-2.0242538,2.0503731
v9.9057837C-2.0106475,11.7193327-1.3380729,12.3984375,0.0136063,12.3984375z M0.0593152,11.3471317
c-0.6725746,0-1.0186567-0.3591423-1.0186567-1.0121269V0.4684002c0-0.6464552,0.346082-1.0186567,1.0251865-1.0186567h2.9057837

v3.7938433c0,0.8227613,0.4113805,1.2276118,1.227612,1.2276118h3.7220149v5.8638062
c0,0.6529846-0.3460822,1.0121269-1.0251865,1.0121269H0.0593152z M4.3167777,3.4851911
c-0.2611938,0-0.3591416-0.1044776-0.3591416-0.3656716v-3.4673507l3.761194,3.8330224H4.3167777z M5.8839421,6.2734375H0.9277854
c-0.2350746,0-0.4113806,0.1763058-0.4113806,0.3983207c0,0.2285452,0.176306,0.404851,0.4113806,0.404851h4.9561567
c0.2285447,0,0.3983207-0.1763058,0.3983207-0.404851C6.2822628,6.4497433,6.1124868,6.2734375,5.8839421,6.2734375z
M5.8839421,8.5523558H0.9277854c-0.2350746,0-0.4113806,0.1828356-0.4113806,0.4113798

c0,0.2220154,0.176306,0.3917913,0.4113806,0.3917913h4.9561567c0.2285447,0,0.3983207-0.169776,0.3983207-0.3917913

C6.2822628,8.7351913,6.1124868,8.5523558,5.8839421,8.5523558z"></path></g></svg> Building a Universal mac<wbr data-v-39207972="">OS Binary<!----> Create macOS apps and other executables that run natively on both Apple silicon and Intel-based Mac computers. <!----><!----><!----> <!----> <a data-v-39207972="" href="/documentation/xcode/adding-package-dependencies-to-your-app" class="link has-adjacent-elements"> <svg data-v-7f60a732="" data-v-

9d2ba25c="" aria-hidden="true" xmlns="http://www.w3.org/2000/svg" class="svg-icon article-icon topic-icon" viewBox="0 0 14 14"><g data-v-7f60a732="" transform="translate(3.616699, 1.608398)"><path data-v-7f60a732="" d="M0.0136063,12.3984375H6.948308c1.3516788,0,2.0242538-0.6856346,2.0242538-2.0438433V4.4254899
c0-0.842351-0.0979481-1.2080226-0.6203365-1.7434704L4.7542777-0.9812267
C4.2580094-1.490555,3.8466287-1.6015625,3.1152854-1.6015625H0.0136063c-1.3451493,0-2.0242538,0.6921641-2.0242538,2.0503731
v9.9057837C-2.0106475,11.7193327-1.3380729,12.3984375,0.0136063,12.3984375z M0.0593152,11.3471317
c-0.6725746,0-1.0186567-0.3591423-1.0186567-1.0121269V0.4684002c0-0.6464552,0.346082-1.0186567,1.0251865-1.0186567h2.9057837

v3.7938433c0,0.8227613,0.4113805,1.2276118,1.227612,1.2276118h3.7220149v5.8638062
c0,0.6529846-0.3460822,1.0121269-1.0251865,1.0121269H0.0593152z M4.3167777,3.4851911
c-0.2611938,0-0.3591416-0.1044776-0.3591416-0.3656716v-3.4673507l3.761194,3.8330224H4.3167777z M5.8839421,6.2734375H0.9277854
c-0.2350746,0-0.4113806,0.1763058-0.4113806,0.3983207c0,0.2285452,0.176306,0.404851,0.4113806,0.404851h4.9561567
c0.2285447,0,0.3983207-0.1763058,0.3983207-0.404851C6.2822628,6.4497433,6.1124868,6.2734375,5.8839421,6.2734375z
M5.8839421,8.5523558H0.9277854c-0.2350746,0-0.4113806,0.1828356-0.4113806,0.4113798

c0,0.2220154,0.176306,0.3917913,0.4113806,0.3917913h4.9561567c0.2285447,0,0.3983207-0.169776,0.3983207-0.3917913

C6.2822628,8.7351913,6.1124868,8.5523558,5.8839421,8.5523558z"></path></g></svg> Adding Package Dependencies to Your App<!----> Integrate package dependencies to share code between projects, or leverage code from other developers. <!----><!----><!----> <!----> <a data-v-39207972="" href="/documentation/uikit/mac_catalyst/creating_a_mac_version_of_your_ipad_app" class="link has-adjacent-elements"> <svg data-v-7f60a732="" data-v-9d2ba25c="" aria-hidden="true" xmlns="http://www.w3.org/2000/svg" class="svg-icon article-icon topic-icon" viewBox="0 0 14 14"><g data-v-7f60a732="" transform="translate(3.616699, 1.608398)"><path data-v-7f60a732="" d="M0.0136063,12.3984375H6.948308c1.3516788,0,2.0242538-0.6856346,2.0242538-2.0438433V4.4254899
c0-0.842351-0.0979481-1.2080226-0.6203365-1.7434704L4.7542777-0.9812267

C4.2580094-1.490555,3.8466287-1.6015625,3.1152854-
1.6015625H0.0136063c-1.3451493,0-2.0242538,0.6921641-
2.0242538,2.0503731
v9.9057837C-2.0106475,11.7193327-
1.3380729,12.3984375,0.0136063,12.3984375z M0.0593152,11.3471317
c-0.6725746,0-1.0186567-0.3591423-1.0186567-1.0121269V0.4684002c0-
0.6464552,0.346082-1.0186567,1.0251865-1.0186567h2.9057837

v3.7938433c0,0.8227613,0.4113805,1.2276118,1.227612,1.2276118h3.722014
9v5.8638062
c0,0.6529846-0.3460822,1.0121269-1.0251865,1.0121269H0.0593152z
M4.3167777,3.4851911
c-0.2611938,0-0.3591416-0.1044776-0.3591416-0.3656716v-
3.4673507l3.761194,3.8330224H4.3167777z
M5.8839421,6.2734375H0.9277854
c-0.2350746,0-0.4113806,0.1763058-
0.4113806,0.3983207c0,0.2285452,0.176306,0.404851,0.4113806,0.404851h4.
9561567
c0.2285447,0,0.3983207-0.1763058,0.3983207-
0.404851C6.2822628,6.4497433,6.1124868,6.2734375,5.8839421,6.2734375z
M5.8839421,8.5523558H0.9277854c-0.2350746,0-0.4113806,0.1828356-
0.4113806,0.4113798

c0,0.2220154,0.176306,0.3917913,0.4113806,0.3917913h4.9561567c0.228544
7,0,0.3983207-0.169776,0.3983207-0.3917913

C6.2822628,8.7351913,6.1124868,8.5523558,5.8839421,8.5523558z"></path>
</g></svg> Creating a Mac Version of Your
i<wbr data-v-39207972="">Pad App<!----><div data-v-
39207972="" class="abstract"><div data-v-702ae484="" data-v-39207972=""
class="content">Bring your iPad app to macOS with Mac Catalyst. <!----
><!----><!----> <!----> <div data-v-39207972="" data-v-
a2aafb2a="" class="link-block topic" data-v-3277df5c=""><a data-v-
39207972="" href="/documentation/xcode/embedding-a-helper-tool-in-a-
sandboxed-app" class="link has-adjacent-elements"><div data-v-9d2ba25c=""
data-v-39207972="" class="topic-icon-wrapper"><svg data-v-7f60a732=""
data-v-9d2ba25c="" aria-hidden="true" xmlns="http://www.w3.org/2000/svg"
class="svg-icon article-icon topic-icon" viewBox="0 0 14 14"><g data-v-
7f60a732="" transform="translate(3.616699, 1.608398)"><path data-v-
7f60a732="" d="M0.0136063,12.3984375H6.948308c1.3516788,0,2.0242538-
0.6856346,2.0242538-2.0438433V4.4254899
c0-0.842351-0.0979481-1.2080226-0.6203365-1.7434704L4.7542777-
0.9812267
C4.2580094-1.490555,3.8466287-1.6015625,3.1152854-
1.6015625H0.0136063c-1.3451493,0-2.0242538,0.6921641-
2.0242538,2.0503731
v9.9057837C-2.0106475,11.7193327-
1.3380729,12.3984375,0.0136063,12.3984375z M0.0593152,11.3471317
c-0.6725746,0-1.0186567-0.3591423-1.0186567-1.0121269V0.4684002c0-
0.6464552,0.346082-1.0186567,1.0251865-1.0186567h2.9057837

v3.7938433c0,0.8227613,0.4113805,1.2276118,1.227612,1.2276118h3.722014
9v5.8638062

c0,0.6529846-0.3460822,1.0121269-1.0251865,1.0121269H0.0593152z
M4.3167777,3.4851911
c-0.2611938,0-0.3591416-0.1044776-0.3591416-0.3656716v-
3.4673507l3.761194,3.8330224H4.3167777z
M5.8839421,6.2734375H0.9277854
c-0.2350746,0-0.4113806,0.1763058-
0.4113806,0.3983207c0,0.2285452,0.176306,0.404851,0.4113806,0.404851h4.
9561567
c0.2285447,0,0.3983207-0.1763058,0.3983207-
0.404851C6.2822628,6.4497433,6.1124868,6.2734375,5.8839421,6.2734375z
M5.8839421,8.5523558H0.9277854c-0.2350746,0-0.4113806,0.1828356-
0.4113806,0.4113798

c0,0.2220154,0.176306,0.3917913,0.4113806,0.3917913h4.9561567c0.228544
7,0,0.3983207-0.169776,0.3983207-0.3917913

C6.2822628,8.7351913,6.1124868,8.5523558,5.8839421,8.5523558z"></path>
</g></svg> Embedding a Command-Line
Tool in a Sandboxed App<!----><div data-v-39207972=""
class="abstract"><div data-v-702ae484="" data-v-39207972=""
class="content">Add a command-line tool to a sandboxed app’s Xcode project
so the resulting app can run it as a helper
tool. <!----><!----><!----> <!----> <div data-v-39207972=""
data-v-a2aafb2a="" class="link-block topic" data-v-3277df5c=""><a data-v-
39207972="" href="/documentation/xcode/embedding-nonstandard-code-
structures-in-a-bundle" class="link has-adjacent-elements"><div data-v-
9d2ba25c="" data-v-39207972="" class="topic-icon-wrapper"><svg data-v-
7f60a732="" data-v-9d2ba25c="" aria-hidden="true"
xmlns="http://www.w3.org/2000/svg" class="svg-icon article-icon topic-icon"
viewBox="0 0 14 14"><g data-v-7f60a732="" transform="translate(3.616699,
1.608398)"><path data-v-7f60a732=""
d="M0.0136063,12.3984375H6.948308c1.3516788,0,2.0242538-
0.6856346,2.0242538-2.0438433V4.4254899
c0-0.842351-0.0979481-1.2080226-0.6203365-1.7434704L4.7542777-
0.9812267
C4.2580094-1.490555,3.8466287-1.6015625,3.1152854-
1.6015625H0.0136063c-1.3451493,0-2.0242538,0.6921641-
2.0242538,2.0503731
v9.9057837C-2.0106475,11.7193327-
1.3380729,12.3984375,0.0136063,12.3984375z M0.0593152,11.3471317
c-0.6725746,0-1.0186567-0.3591423-1.0186567-1.0121269V0.4684002c0-
0.6464552,0.346082-1.0186567,1.0251865-1.0186567h2.9057837

v3.7938433c0,0.8227613,0.4113805,1.2276118,1.227612,1.2276118h3.722014
9v5.8638062
c0,0.6529846-0.3460822,1.0121269-1.0251865,1.0121269H0.0593152z
M4.3167777,3.4851911
c-0.2611938,0-0.3591416-0.1044776-0.3591416-0.3656716v-
3.4673507l3.761194,3.8330224H4.3167777z
M5.8839421,6.2734375H0.9277854
c-0.2350746,0-0.4113806,0.1763058-
0.4113806,0.3983207c0,0.2285452,0.176306,0.404851,0.4113806,0.404851h4.
9561567

c0.2285447,0,0.3983207-0.1763058,0.3983207-
0.404851C6.2822628,6.4497433,6.1124868,6.2734375,5.8839421,6.2734375z
M5.8839421,8.5523558H0.9277854c-0.2350746,0-0.4113806,0.1828356-
0.4113806,0.4113798

c0,0.2220154,0.176306,0.3917913,0.4113806,0.3917913h4.9561567c0.228544
7,0,0.3983207-0.169776,0.3983207-0.3917913

C6.2822628,8.7351913,6.1124868,8.5523558,5.8839421,8.5523558z"></path>
</g></svg> Embedding Nonstandard Code
Structures in a Bundle<!----><div data-v-39207972=""
class="abstract"><div data-v-702ae484="" data-v-39207972=""
class="content">Use code that’s structured in a nonstandard way while avoiding
code signing and distribution problems. <!----><!----><!----> <!----
> <div data-v-3277df5c="" data-v-a2aafb2a=""
class="contenttable-section"><div data-v-3277df5c="" class="section-
title"><h3 data-v-3277df5c="" class="title">Running Apps</h3> <div
data-v-3277df5c="" class="section-content"><!----><!----><!----><div data-v-
39207972="" data-v-a2aafb2a="" class="link-block topic" data-v-
3277df5c=""><a data-v-39207972="" href="/documentation/xcode/running-
your-app-in-the-simulator-or-on-a-device" class="link has-adjacent-
elements"><div data-v-9d2ba25c="" data-v-39207972="" class="topic-icon-
wrapper"><svg data-v-7f60a732="" data-v-9d2ba25c="" aria-hidden="true"
xmlns="http://www.w3.org/2000/svg" class="svg-icon article-icon topic-icon"
viewBox="0 0 14 14"><g data-v-7f60a732="" transform="translate(3.616699,
1.608398)"><path data-v-7f60a732=""
d="M0.0136063,12.3984375H6.948308c1.3516788,0,2.0242538-
0.6856346,2.0242538-2.0438433V4.4254899
c0-0.842351-0.0979481-1.2080226-0.6203365-1.7434704L4.7542777-
0.9812267
C4.2580094-1.490555,3.8466287-1.6015625,3.1152854-
1.6015625H0.0136063c-1.3451493,0-2.0242538,0.6921641-
2.0242538,2.0503731
v9.9057837C-2.0106475,11.7193327-
1.3380729,12.3984375,0.0136063,12.3984375z M0.0593152,11.3471317
c-0.6725746,0-1.0186567-0.3591423-1.0186567-1.0121269V0.4684002c0-
0.6464552,0.346082-1.0186567,1.0251865-1.0186567h2.9057837

v3.7938433c0,0.8227613,0.4113805,1.2276118,1.227612,1.2276118h3.722014
9v5.8638062
c0,0.6529846-0.3460822,1.0121269-1.0251865,1.0121269H0.0593152z
M4.3167777,3.4851911
c-0.2611938,0-0.3591416-0.1044776-0.3591416-0.3656716v-
3.4673507l3.761194,3.8330224H4.3167777z
M5.8839421,6.2734375H0.9277854
c-0.2350746,0-0.4113806,0.1763058-
0.4113806,0.3983207c0,0.2285452,0.176306,0.404851,0.4113806,0.404851h4.
9561567
c0.2285447,0,0.3983207-0.1763058,0.3983207-
0.404851C6.2822628,6.4497433,6.1124868,6.2734375,5.8839421,6.2734375z
M5.8839421,8.5523558H0.9277854c-0.2350746,0-0.4113806,0.1828356-
0.4113806,0.4113798

c0,0.2220154,0.176306,0.3917913,0.4113806,0.3917913h4.9561567c0.2285447,0,0.3983207-0.169776,0.3983207-0.3917913

C6.2822628,8.7351913,6.1124868,8.5523558,5.8839421,8.5523558z"></path></g></svg> Running Your App in the Simulator or on a Device<!----> Launch your app in a simulated iOS, tvOS, or watchOS device, or on a device connected to your Mac. <!----><!----><!----> <!----> <a data-v-39207972="" href="/documentation/xcode/installing-additional-simulator-runtimes" class="link has-adjacent-elements"> <svg data-v-7f60a732="" data-v-9d2ba25c="" aria-hidden="true" xmlns="http://www.w3.org/2000/svg" class="svg-icon article-icon topic-icon" viewBox="0 0 14 14"><g data-v-7f60a732="" transform="translate(3.616699, 1.608398)"><path data-v-7f60a732="" d="M0.0136063,12.3984375H6.948308c1.3516788,0,2.0242538-0.6856346,2.0242538-2.0438433V4.4254899
c0-0.842351-0.0979481-1.2080226-0.6203365-1.7434704L4.7542777-0.9812267
C4.2580094-1.490555,3.8466287-1.6015625,3.1152854-1.6015625H0.0136063c-1.3451493,0-2.0242538,0.6921641-2.0242538,2.0503731
v9.9057837C-2.0106475,11.7193327-1.3380729,12.3984375,0.0136063,12.3984375z M0.0593152,11.3471317
c-0.6725746,0-1.0186567-0.3591423-1.0186567-1.0121269V0.4684002c0-0.6464552,0.346082-1.0186567,1.0251865-1.0186567h2.9057837

v3.7938433c0,0.8227613,0.4113805,1.2276118,1.227612,1.2276118h3.7220149v5.8638062
c0,0.6529846-0.3460822,1.0121269-1.0251865,1.0121269H0.0593152z M4.3167777,3.4851911
c-0.2611938,0-0.3591416-0.1044776-0.3591416-0.3656716v-3.4673507l3.761194,3.8330224H4.3167777z M5.8839421,6.2734375H0.9277854
c-0.2350746,0-0.4113806,0.1763058-0.4113806,0.3983207c0,0.2285452,0.176306,0.404851,0.4113806,0.404851h4.9561567
c0.2285447,0,0.3983207-0.1763058,0.3983207-0.404851C6.2822628,6.4497433,6.1124868,6.2734375,5.8839421,6.2734375z
M5.8839421,8.5523558H0.9277854c-0.2350746,0-0.4113806,0.1828356-0.4113806,0.4113798

c0,0.2220154,0.176306,0.3917913,0.4113806,0.3917913h4.9561567c0.2285447,0,0.3983207-0.169776,0.3983207-0.3917913

C6.2822628,8.7351913,6.1124868,8.5523558,5.8839421,8.5523558z"></path></g></svg> Installing and managing simulator runtimes<!----> Keep the simulator platforms and versions you need to run and test your apps up-to-date in

Xcode. <!----><!----><!----> <!----> <a data-v-39207972="" href="/documentation/xcode/enabling-developer-mode-on-a-device" class="link has-adjacent-elements"> <svg data-v-7f60a732="" data-v-9d2ba25c="" aria-hidden="true" xmlns="http://www.w3.org/2000/svg" class="svg-icon article-icon topic-icon" viewBox="0 0 14 14"><g data-v-7f60a732="" transform="translate(3.616699, 1.608398)"><path data-v-7f60a732="" d="M0.0136063,12.3984375H6.948308c1.3516788,0,2.0242538-0.6856346,2.0242538-2.0438433V4.4254899
c0-0.842351-0.0979481-1.2080226-0.6203365-1.7434704L4.7542777-0.9812267
C4.2580094-1.490555,3.8466287-1.6015625,3.1152854-1.6015625H0.0136063c-1.3451493,0-2.0242538,0.6921641-2.0242538,2.0503731
v9.9057837C-2.0106475,11.7193327-1.3380729,12.3984375,0.0136063,12.3984375z M0.0593152,11.3471317
c-0.6725746,0-1.0186567-0.3591423-1.0186567-1.0121269V0.4684002c0-0.6464552,0.346082-1.0186567,1.0251865-1.0186567h2.9057837

v3.7938433c0,0.8227613,0.4113805,1.2276118,1.227612,1.2276118h3.7220149v5.8638062
c0,0.6529846-0.3460822,1.0121269-1.0251865,1.0121269H0.0593152z M4.3167777,3.4851911
c-0.2611938,0-0.3591416-0.1044776-0.3591416-0.3656716v-3.4673507l3.761194,3.8330224H4.3167777z M5.8839421,6.2734375H0.9277854
c-0.2350746,0-0.4113806,0.1763058-0.4113806,0.3983207c0,0.2285452,0.176306,0.404851,0.4113806,0.404851h4.9561567
c0.2285447,0,0.3983207-0.1763058,0.3983207-0.404851C6.2822628,6.4497433,6.1124868,6.2734375,5.8839421,6.2734375z
M5.8839421,8.5523558H0.9277854c-0.2350746,0-0.4113806,0.1828356-0.4113806,0.4113798

c0,0.2220154,0.176306,0.3917913,0.4113806,0.3917913h4.9561567c0.2285447,0,0.3983207-0.169776,0.3983207-0.3917913

C6.2822628,8.7351913,6.1124868,8.5523558,5.8839421,8.5523558z"></path></g></svg> Enabling Developer Mode on a device<!----> Grant or deny permission for locally installed apps to run on iOS, iPadOS, and watchOS devices. <!----><!----><!----> <!----> <h3 data-v-3277df5c="" class="title">Debugging</h3> <!----><!----><!----> <a data-v-39207972="" href="/documentation/xcode/diagnosing-and-resolving-bugs-in-your-running-app" class="link has-adjacent-elements"> <svg data-v-7f60a732="" data-v-9d2ba25c="" aria-hidden="true" xmlns="http://www.w3.org/2000/svg"

class="svg-icon article-icon topic-icon" viewBox="0 0 14 14"><g data-v-7f60a732="" transform="translate(3.616699, 1.608398)"><path data-v-7f60a732="" d="M0.0136063,12.3984375H6.948308c1.3516788,0,2.0242538-0.6856346,2.0242538-2.0438433V4.4254899
c0-0.842351-0.0979481-1.2080226-0.6203365-1.7434704L4.7542777-0.9812267
C4.2580094-1.490555,3.8466287-1.6015625,3.1152854-1.6015625H0.0136063c-1.3451493,0-2.0242538,0.6921641-2.0242538,2.0503731
v9.9057837C-2.0106475,11.7193327-1.3380729,12.3984375,0.0136063,12.3984375z M0.0593152,11.3471317
c-0.6725746,0-1.0186567-0.3591423-1.0186567-1.0121269V0.4684002c0-0.6464552,0.346082-1.0186567,1.0251865-1.0186567h2.9057837

v3.7938433c0,0.8227613,0.4113805,1.2276118,1.227612,1.2276118h3.7220149v5.8638062
c0,0.6529846-0.3460822,1.0121269-1.0251865,1.0121269H0.0593152z M4.3167777,3.4851911
c-0.2611938,0-0.3591416-0.1044776-0.3591416-0.3656716v-3.4673507l3.761194,3.8330224H4.3167777z M5.8839421,6.2734375H0.9277854
c-0.2350746,0-0.4113806,0.1763058-0.4113806,0.3983207c0,0.2285452,0.176306,0.404851,0.4113806,0.404851h4.9561567
c0.2285447,0,0.3983207-0.1763058,0.3983207-0.404851C6.2822628,6.4497433,6.1124868,6.2734375,5.8839421,6.2734375z
M5.8839421,8.5523558H0.9277854c-0.2350746,0-0.4113806,0.1828356-0.4113806,0.4113798

c0,0.2220154,0.176306,0.3917913,0.4113806,0.3917913h4.9561567c0.2285447,0,0.3983207-0.169776,0.3983207-0.3917913

C6.2822628,8.7351913,6.1124868,8.5523558,5.8839421,8.5523558z"></path></g></svg> Diagnosing and Resolving Bugs in Your Running App<!----> Inspect your running app to isolate bugs, locate crashes, identify excess system resource usage, visualize memory bugs, and investigate view layout problems. <!----><!----><!----> <!----> <a data-v-39207972="" href="/documentation/xcode/setting-breakpoints-to-pause-your-running-app" class="link has-adjacent-elements"> <svg data-v-7f60a732="" data-v-9d2ba25c="" aria-hidden="true" xmlns="http://www.w3.org/2000/svg" class="svg-icon article-icon topic-icon" viewBox="0 0 14 14"><g data-v-7f60a732="" transform="translate(3.616699, 1.608398)"><path data-v-7f60a732="" d="M0.0136063,12.3984375H6.948308c1.3516788,0,2.0242538-0.6856346,2.0242538-2.0438433V4.4254899
c0-0.842351-0.0979481-1.2080226-0.6203365-1.7434704L4.7542777-0.9812267
C4.2580094-1.490555,3.8466287-1.6015625,3.1152854-1.6015625H0.0136063c-1.3451493,0-2.0242538,0.6921641-2.0242538,2.0503731

v9.9057837C-2.0106475,11.7193327-
1.3380729,12.3984375,0.0136063,12.3984375z M0.0593152,11.3471317
c-0.6725746,0-1.0186567-0.3591423-1.0186567-1.0121269V0.4684002c0-
0.6464552,0.346082-1.0186567,1.0251865-1.0186567h2.9057837

v3.7938433c0,0.8227613,0.4113805,1.2276118,1.227612,1.2276118h3.722014
9v5.8638062
c0,0.6529846-0.3460822,1.0121269-1.0251865,1.0121269H0.0593152z
M4.3167777,3.4851911
c-0.2611938,0-0.3591416-0.1044776-0.3591416-0.3656716v-
3.4673507l3.761194,3.8330224H4.3167777z
M5.8839421,6.2734375H0.9277854
c-0.2350746,0-0.4113806,0.1763058-
0.4113806,0.3983207c0,0.2285452,0.176306,0.404851,0.4113806,0.404851h4.
9561567
c0.2285447,0,0.3983207-0.1763058,0.3983207-
0.404851C6.2822628,6.4497433,6.1124868,6.2734375,5.8839421,6.2734375z
M5.8839421,8.5523558H0.9277854c-0.2350746,0-0.4113806,0.1828356-
0.4113806,0.4113798

c0,0.2220154,0.176306,0.3917913,0.4113806,0.3917913h4.9561567c0.228544
7,0,0.3983207-0.169776,0.3983207-0.3917913

C6.2822628,8.7351913,6.1124868,8.5523558,5.8839421,8.5523558z"></path>
</g></svg> Setting Breakpoints to Pause
Your Running App<!----><div data-v-39207972=""
class="abstract"><div data-v-702ae484="" data-v-39207972=""
class="content">Specify where your app pauses when running the debugger to
investigate bugs. <!----><!----><!----> <!----> <div data-v-
39207972="" data-v-a2aafb2a="" class="link-block topic" data-v-
3277df5c=""><a data-v-39207972="" href="/documentation/xcode/stepping-
through-code-and-inspecting-variables-to-isolate-bugs" class="link has-adjacent-
elements"><div data-v-9d2ba25c="" data-v-39207972="" class="topic-icon-
wrapper"><svg data-v-7f60a732="" data-v-9d2ba25c="" aria-hidden="true"
xmlns="http://www.w3.org/2000/svg" class="svg-icon article-icon topic-icon"
viewBox="0 0 14 14"><g data-v-7f60a732="" transform="translate(3.616699,
1.608398)"><path data-v-7f60a732=""
d="M0.0136063,12.3984375H6.948308c1.3516788,0,2.0242538-
0.6856346,2.0242538-2.0438433V4.4254899
c0-0.842351-0.0979481-1.2080226-0.6203365-1.7434704L4.7542777-
0.9812267
C4.2580094-1.490555,3.8466287-1.6015625,3.1152854-
1.6015625H0.0136063c-1.3451493,0-2.0242538,0.6921641-
2.0242538,2.0503731
v9.9057837C-2.0106475,11.7193327-
1.3380729,12.3984375,0.0136063,12.3984375z M0.0593152,11.3471317
c-0.6725746,0-1.0186567-0.3591423-1.0186567-1.0121269V0.4684002c0-
0.6464552,0.346082-1.0186567,1.0251865-1.0186567h2.9057837

v3.7938433c0,0.8227613,0.4113805,1.2276118,1.227612,1.2276118h3.722014
9v5.8638062
c0,0.6529846-0.3460822,1.0121269-1.0251865,1.0121269H0.0593152z
M4.3167777,3.4851911

c-0.2611938,0-0.3591416-0.1044776-0.3591416-0.3656716v-3.4673507l3.761194,3.8330224H4.3167777z M5.8839421,6.2734375H0.9277854
c-0.2350746,0-0.4113806,0.1763058-0.4113806,0.3983207c0,0.2285452,0.176306,0.404851,0.4113806,0.404851h4.9561567
c0.2285447,0,0.3983207-0.1763058,0.3983207-0.404851C6.2822628,6.4497433,6.1124868,6.2734375,5.8839421,6.2734375z
M5.8839421,8.5523558H0.9277854c-0.2350746,0-0.4113806,0.1828356-0.4113806,0.4113798

c0,0.2220154,0.176306,0.3917913,0.4113806,0.3917913h4.9561567c0.2285447,0,0.3983207-0.169776,0.3983207-0.3917913

C6.2822628,8.7351913,6.1124868,8.5523558,5.8839421,8.5523558z"></path></g></svg> Stepping Through Code and Inspecting Variables to Isolate Bugs<!----> Find the cause of your bugs by watching variables change as you step through your source code in the debugger. <!----><!----><!----> <!----> <a data-v-39207972="" href="/documentation/xcode/building-your-app-to-include-debugging-information" class="link has-adjacent-elements"> <svg data-v-7f60a732="" data-v-9d2ba25c="" aria-hidden="true" xmlns="http://www.w3.org/2000/svg" class="svg-icon article-icon topic-icon" viewBox="0 0 14 14"><g data-v-7f60a732="" transform="translate(3.616699, 1.608398)"><path data-v-7f60a732="" d="M0.0136063,12.3984375H6.948308c1.3516788,0,2.0242538-0.6856346,2.0242538-2.0438433V4.4254899
c0-0.842351-0.0979481-1.2080226-0.6203365-1.7434704L4.7542777-0.9812267
C4.2580094-1.490555,3.8466287-1.6015625,3.1152854-1.6015625H0.0136063c-1.3451493,0-2.0242538,0.6921641-2.0242538,2.0503731
v9.9057837C-2.0106475,11.7193327-1.3380729,12.3984375,0.0136063,12.3984375z M0.0593152,11.3471317
c-0.6725746,0-1.0186567-0.3591423-1.0186567-1.0121269V0.4684002c0-0.6464552,0.346082-1.0186567,1.0251865-1.0186567h2.9057837

v3.7938433c0,0.8227613,0.4113805,1.2276118,1.227612,1.2276118h3.7220149v5.8638062
c0,0.6529846-0.3460822,1.0121269-1.0251865,1.0121269H0.0593152z M4.3167777,3.4851911
c-0.2611938,0-0.3591416-0.1044776-0.3591416-0.3656716v-3.4673507l3.761194,3.8330224H4.3167777z M5.8839421,6.2734375H0.9277854
c-0.2350746,0-0.4113806,0.1763058-0.4113806,0.3983207c0,0.2285452,0.176306,0.404851,0.4113806,0.404851h4.9561567
c0.2285447,0,0.3983207-0.1763058,0.3983207-0.404851C6.2822628,6.4497433,6.1124868,6.2734375,5.8839421,6.2734375z
M5.8839421,8.5523558H0.9277854c-0.2350746,0-0.4113806,0.1828356-0.4113806,0.4113798

c0,0.2220154,0.176306,0.3917913,0.4113806,0.3917913h4.9561567c0.228544
7,0,0.3983207-0.169776,0.3983207-0.3917913

C6.2822628,8.7351913,6.1124868,8.5523558,5.8839421,8.5523558z"></path>
</g></svg> Building Your App to Include
Debugging Information<!----><div data-v-39207972=""
class="abstract"><div data-v-702ae484="" data-v-39207972=""
class="content">Configure Xcode to produce the symbol information for
debugging and crash
reports. <!----><!----><!----> <!----> <div data-v-
39207972="" data-v-a2aafb2a="" class="link-block topic" data-v-
3277df5c=""><a data-v-39207972=""
href="/documentation/foundation/url_loading_system/analyzing_http_traffic_with
_instruments" class="link has-adjacent-elements"><div data-v-9d2ba25c=""
data-v-39207972="" class="topic-icon-wrapper"><svg data-v-7f60a732=""
data-v-9d2ba25c="" aria-hidden="true" xmlns="http://www.w3.org/2000/svg"
class="svg-icon article-icon topic-icon" viewBox="0 0 14 14"><g data-v-
7f60a732="" transform="translate(3.616699, 1.608398)"><path data-v-
7f60a732="" d="M0.0136063,12.3984375H6.948308c1.3516788,0,2.0242538-
0.6856346,2.0242538-2.0438433V4.4254899
c0-0.842351-0.0979481-1.2080226-0.6203365-1.7434704L4.7542777-
0.9812267
C4.2580094-1.490555,3.8466287-1.6015625,3.1152854-
1.6015625H0.0136063c-1.3451493,0-2.0242538,0.6921641-
2.0242538,2.0503731
v9.9057837C-2.0106475,11.7193327-
1.3380729,12.3984375,0.0136063,12.3984375z M0.0593152,11.3471317
c-0.6725746,0-1.0186567-0.3591423-1.0186567-1.0121269V0.4684002c0-
0.6464552,0.346082-1.0186567,1.0251865-1.0186567h2.9057837

v3.7938433c0,0.8227613,0.4113805,1.2276118,1.227612,1.2276118h3.722014
9v5.8638062
c0,0.6529846-0.3460822,1.0121269-1.0251865,1.0121269H0.0593152z
M4.3167777,3.4851911
c-0.2611938,0-0.3591416-0.1044776-0.3591416-0.3656716v-
3.4673507l3.761194,3.8330224H4.3167777z
M5.8839421,6.2734375H0.9277854
c-0.2350746,0-0.4113806,0.1763058-
0.4113806,0.3983207c0,0.2285452,0.176306,0.404851,0.4113806,0.404851h4.
9561567
c0.2285447,0,0.3983207-0.1763058,0.3983207-
0.404851C6.2822628,6.4497433,6.1124868,6.2734375,5.8839421,6.2734375z
M5.8839421,8.5523558H0.9277854c-0.2350746,0-0.4113806,0.1828356-
0.4113806,0.4113798

c0,0.2220154,0.176306,0.3917913,0.4113806,0.3917913h4.9561567c0.228544
7,0,0.3983207-0.169776,0.3983207-0.3917913

C6.2822628,8.7351913,6.1124868,8.5523558,5.8839421,8.5523558z"></path>
</g></svg> Analyzing HTTP Traffic with
Instruments<!----><div data-v-39207972=""
class="abstract"><div data-v-702ae484="" data-v-39207972=""
class="content">Measure HTTP-based network performance and usage of your

apps. <!----><!----><!----> <!----> <a data-v-39207972="" href="/documentation/bundleresources/entitlements/diagnosing_issues_with_entitlements" class="link has-adjacent-elements"> <svg data-v-7f60a732="" data-v-9d2ba25c="" aria-hidden="true" xmlns="http://www.w3.org/2000/svg" class="svg-icon article-icon topic-icon" viewBox="0 0 14 14"><g data-v-7f60a732="" transform="translate(3.616699, 1.608398)"><path data-v-7f60a732="" d="M0.0136063,12.3984375H6.948308c1.3516788,0,2.0242538-0.6856346,2.0242538-2.0438433V4.4254899
c0-0.842351-0.0979481-1.2080226-0.6203365-1.7434704L4.7542777-0.9812267
C4.2580094-1.490555,3.8466287-1.6015625,3.1152854-1.6015625H0.0136063c-1.3451493,0-2.0242538,0.6921641-2.0242538,2.0503731
v9.9057837C-2.0106475,11.7193327-1.3380729,12.3984375,0.0136063,12.3984375z M0.0593152,11.3471317
c-0.6725746,0-1.0186567-0.3591423-1.0186567-1.0121269V0.4684002c0-0.6464552,0.346082-1.0186567,1.0251865-1.0186567h2.9057837

v3.7938433c0,0.8227613,0.4113805,1.2276118,1.227612,1.2276118h3.7220149v5.8638062
c0,0.6529846-0.3460822,1.0121269-1.0251865,1.0121269H0.0593152z M4.3167777,3.4851911
c-0.2611938,0-0.3591416-0.1044776-0.3591416-0.3656716v-3.4673507l3.761194,3.8330224H4.3167777z M5.8839421,6.2734375H0.9277854
c-0.2350746,0-0.4113806,0.1763058-0.4113806,0.3983207c0,0.2285452,0.176306,0.404851,0.4113806,0.404851h4.9561567
c0.2285447,0,0.3983207-0.1763058,0.3983207-0.404851C6.2822628,6.4497433,6.1124868,6.2734375,5.8839421,6.2734375z
M5.8839421,8.5523558H0.9277854c-0.2350746,0-0.4113806,0.1828356-0.4113806,0.4113798

c0,0.2220154,0.176306,0.3917913,0.4113806,0.3917913h4.9561567c0.2285447,0,0.3983207-0.169776,0.3983207-0.3917913

C6.2822628,8.7351913,6.1124868,8.5523558,5.8839421,8.5523558z"></path></g></svg> Diagnosing Issues with Entitlements<!----> Verify your app’s entitlements at every stage of development to track down errors during distribution. <!----><!----><!----> <!----> <a data-v-39207972="" href="/documentation/xcode/diagnosing-memory-thread-and-crash-issues-early" class="link has-adjacent-elements"> <svg data-v-7f60a732="" data-v-9d2ba25c="" aria-hidden="true" xmlns="http://www.w3.org/2000/svg" class="svg-icon api-reference-icon topic-icon" viewBox="0 0 14 14"><title data-v-7f60a732="">API Reference</title><g data-v-7f60a732=""

transform="translate(2.116699, 4.455566)"><path data-v-7f60a732="" d="M-1.2412647-0.767793c0.4863523,0,0.8754342-0.3890819,0.8754342-0.8684863
c0-0.4863524-0.3890819-0.8754342-0.8754342-0.8754342S-2.116699-2.1226318-2.116699-1.6362793
C-2.116699-1.1568749-1.7276171-0.767793-1.2412647-0.767793z M1.829703-1.0804482h9.490819
c0.3126545,0,0.5627785-0.2431761,0.5627785-0.5558312c0-0.319603-0.250124-0.5627792-0.5627785-0.5627792H1.829703
c-0.319603,0-0.5627792,0.2431762-0.5627792,0.5627792C1.2669238-1.3236243,1.5101-1.0804482,1.829703-1.0804482z
M-1.2412647,3.4356809c0.4863523,0,0.8754342-0.3890817,0.8754342-0.8754342s-0.3890819-0.8754343-0.8754342-0.8754343
S-2.116699,2.0738943-2.116699,2.5602467S-1.7276171,3.4356809-1.2412647,3.4356809z M1.829703,3.1230259h9.490819
c0.3126545,0,0.5627785-0.2501242,0.5627785-0.5627792s-0.250124-0.5558312-0.5627785-0.5558312H1.829703
c-0.319603,0-0.5627792,0.243176-0.5627792,0.5558312S1.5101,3.1230259,1.829703,3.1230259z M-1.2412647,7.6391549
c0.4863523,0,0.8754342-0.3960299,0.8754342-0.8754344c0-0.4863524-0.3890819-0.8754339-0.8754342-0.8754339
S-2.116699,6.2773681-2.116699,6.7637205C-2.116699,7.243125-1.7276171,7.6391549-1.2412647,7.6391549z M1.829703,7.3195519
h9.490819c0.3126545,0,0.5627785-0.2431765,0.5627785-0.5558314c0-0.319603-0.250124-0.5627789-0.5627785-0.5627789H1.829703
c-0.319603,0-0.5627792,0.243176-0.5627792,0.5627789C1.2669238,7.0763755,1.5101,7.3195519,1.829703,7.3195519z"></path></g></svg> Diagnosing Memory, Thread, and Crash Issues Early<!----> Identify runtime crashes and undefined behaviors in your app during testing using Xcode’s sanitizer tools. <!----><!----><!----> <!----> <a data-v-39207972="" href="/documentation/xcode/diagnosing-issues-using-crash-reports-and-device-logs" class="link has-adjacent-elements"> <svg data-v-7f60a732="" data-v-9d2ba25c="" aria-hidden="true" xmlns="http://www.w3.org/2000/svg" class="svg-icon api-reference-icon topic-icon" viewBox="0 0 14 14"><title data-v-7f60a732="">API Reference</title><g data-v-7f60a732="" transform="translate(2.116699, 4.455566)"><path data-v-7f60a732="" d="M-1.2412647-0.767793c0.4863523,0,0.8754342-0.3890819,0.8754342-0.8684863
c0-0.4863524-0.3890819-0.8754342-0.8754342-0.8754342S-2.116699-2.1226318-2.116699-1.6362793
C-2.116699-1.1568749-1.7276171-0.767793-1.2412647-0.767793z M1.829703-1.0804482h9.490819
c0.3126545,0,0.5627785-0.2431761,0.5627785-0.5558312c0-0.319603-0.250124-0.5627792-0.5627785-0.5627792H1.829703
c-0.319603,0-0.5627792,0.2431762-0.5627792,0.5627792C1.2669238-1.3236243,1.5101-1.0804482,1.829703-1.0804482z
M-1.2412647,3.4356809c0.4863523,0,0.8754342-0.3890817,0.8754342-0.8754342s-0.3890819-0.8754343-0.8754342-0.8754343

S-2.116699,2.0738943-2.116699,2.5602467S-1.7276171,3.4356809-1.2412647,3.4356809z M1.829703,3.1230259h9.490819
c0.3126545,0,0.5627785-0.2501242,0.5627785-0.5627792s-0.250124-0.5558312-0.5627785-0.5558312H1.829703
c-0.319603,0-0.5627792,0.243176-0.5627792,0.5558312S1.5101,3.1230259,1.829703,3.1230259z M-1.2412647,7.6391549
c0.4863523,0,0.8754342-0.3960299,0.8754342-0.8754344c0-0.4863524-0.3890819-0.8754339-0.8754342-0.8754339
S-2.116699,6.2773681-2.116699,6.7637205C-2.116699,7.243125-1.7276171,7.6391549-1.2412647,7.6391549z M1.829703,7.3195519
h9.490819c0.3126545,0,0.5627785-0.2431765,0.5627785-0.5558314c0-0.319603-0.250124-0.5627789-0.5627785-0.5627789H1.829703
c-0.319603,0-0.5627792,0.243176-0.5627792,0.5627789C1.2669238,7.0763755,1.5101,7.3195519,1.829703,7.3195519z"></path></g></svg> Diagnosing Issues Using Crash Reports and Device Logs<!----> Use crash reports and device logs to debug app issues. <!----><!----><!----> <!----> <h3 data-v-3277df5c="" class="title">Testing</h3> <!----><!----><!----> <a data-v-39207972="" href="/documentation/xcode/testing-your-apps-in-xcode" class="link has-adjacent-elements"> <svg data-v-7f60a732="" data-v-9d2ba25c="" aria-hidden="true" xmlns="http://www.w3.org/2000/svg" class="svg-icon article-icon topic-icon" viewBox="0 0 14 14"><g data-v-7f60a732="" transform="translate(3.616699, 1.608398)"><path data-v-7f60a732="" d="M0.0136063,12.3984375H6.948308c1.3516788,0,2.0242538-0.6856346,2.0242538-2.0438433V4.4254899
c0-0.842351-0.0979481-1.2080226-0.6203365-1.7434704L4.7542777-0.9812267
C4.2580094-1.490555,3.8466287-1.6015625,3.1152854-1.6015625H0.0136063c-1.3451493,0-2.0242538,0.6921641-2.0242538,2.0503731
v9.9057837C-2.0106475,11.7193327-1.3380729,12.3984375,0.0136063,12.3984375z M0.0593152,11.3471317
c-0.6725746,0-1.0186567-0.3591423-1.0186567-1.0121269V0.4684002c0-0.6464552,0.346082-1.0186567,1.0251865-1.0186567h2.9057837

v3.7938433c0,0.8227613,0.4113805,1.2276118,1.227612,1.2276118h3.7220149v5.8638062
c0,0.6529846-0.3460822,1.0121269-1.0251865,1.0121269H0.0593152z M4.3167777,3.4851911
c-0.2611938,0-0.3591416-0.1044776-0.3591416-0.3656716v-3.4673507l3.761194,3.8330224H4.3167777z M5.8839421,6.2734375H0.9277854
c-0.2350746,0-0.4113806,0.1763058-0.4113806,0.3983207c0,0.2285452,0.176306,0.404851,0.4113806,0.404851h4.9561567

c0.2285447,0,0.3983207-0.1763058,0.3983207-
0.404851C6.2822628,6.4497433,6.1124868,6.2734375,5.8839421,6.2734375z
M5.8839421,8.5523558H0.9277854c-0.2350746,0-0.4113806,0.1828356-
0.4113806,0.4113798

c0,0.2220154,0.176306,0.3917913,0.4113806,0.3917913h4.9561567c0.228544
7,0,0.3983207-0.169776,0.3983207-0.3917913

C6.2822628,8.7351913,6.1124868,8.5523558,5.8839421,8.5523558z"></path>
</g></svg> Testing Your Apps in
Xcode<!----> <div
data-v-702ae484="" data-v-39207972="" class="content">Detect logic failures,
UI problems, and performance regressions with XCTest. <!----><!----
><!----> <!----> <div data-v-39207972="" data-v-a2aafb2a=""
class="link-block topic" data-v-3277df5c=""><a data-v-39207972=""
href="/documentation/xcode/adding-unit-tests-to-your-existing-project"
class="link has-adjacent-elements"><div data-v-9d2ba25c="" data-v-
39207972="" class="topic-icon-wrapper"><svg data-v-7f60a732="" data-v-
9d2ba25c="" aria-hidden="true" xmlns="http://www.w3.org/2000/svg"
class="svg-icon article-icon topic-icon" viewBox="0 0 14 14"><g data-v-
7f60a732="" transform="translate(3.616699, 1.608398)"><path data-v-
7f60a732="" d="M0.0136063,12.3984375H6.948308c1.3516788,0,2.0242538-
0.6856346,2.0242538-2.0438433V4.4254899
c0-0.842351-0.0979481-1.2080226-0.6203365-1.7434704L4.7542777-
0.9812267
C4.2580094-1.490555,3.8466287-1.6015625,3.1152854-
1.6015625H0.0136063c-1.3451493,0-2.0242538,0.6921641-
2.0242538,2.0503731
v9.9057837C-2.0106475,11.7193327-
1.3380729,12.3984375,0.0136063,12.3984375z M0.0593152,11.3471317
c-0.6725746,0-1.0186567-0.3591423-1.0186567-1.0121269V0.4684002c0-
0.6464552,0.346082-1.0186567,1.0251865-1.0186567h2.9057837

v3.7938433c0,0.8227613,0.4113805,1.2276118,1.227612,1.2276118h3.722014
9v5.8638062
c0,0.6529846-0.3460822,1.0121269-1.0251865,1.0121269H0.0593152z
M4.3167777,3.4851911
c-0.2611938,0-0.3591416-0.1044776-0.3591416-0.3656716v-
3.4673507l3.761194,3.8330224H4.3167777z
M5.8839421,6.2734375H0.9277854
c-0.2350746,0-0.4113806,0.1763058-
0.4113806,0.3983207c0,0.2285452,0.176306,0.404851,0.4113806,0.404851h4.
9561567
c0.2285447,0,0.3983207-0.1763058,0.3983207-
0.404851C6.2822628,6.4497433,6.1124868,6.2734375,5.8839421,6.2734375z
M5.8839421,8.5523558H0.9277854c-0.2350746,0-0.4113806,0.1828356-
0.4113806,0.4113798

c0,0.2220154,0.176306,0.3917913,0.4113806,0.3917913h4.9561567c0.228544
7,0,0.3983207-0.169776,0.3983207-0.3917913

C6.2822628,8.7351913,6.1124868,8.5523558,5.8839421,8.5523558z"></path>
</g></svg> Adding Unit Tests to Your
Existing Project<!----><div data-v-39207972=""

class="abstract"> Remove coupling between components to increase test coverage and reliability. <!----><!----><!----> <!----> <a data-v-39207972="" href="/documentation/xcode/setting-up-storekit-testing-in-xcode" class="link has-adjacent-elements"> <svg data-v-7f60a732="" data-v-9d2ba25c="" aria-hidden="true" xmlns="http://www.w3.org/2000/svg" class="svg-icon article-icon topic-icon" viewBox="0 0 14 14"><g data-v-7f60a732="" transform="translate(3.616699, 1.608398)"><path data-v-7f60a732="" d="M0.0136063,12.3984375H6.948308c1.3516788,0,2.0242538-0.6856346,2.0242538-2.0438433V4.4254899
c0-0.842351-0.0979481-1.2080226-0.6203365-1.7434704L4.7542777-0.9812267
C4.2580094-1.490555,3.8466287-1.6015625,3.1152854-1.6015625H0.0136063c-1.3451493,0-2.0242538,0.6921641-2.0242538,2.0503731
v9.9057837C-2.0106475,11.7193327-1.3380729,12.3984375,0.0136063,12.3984375z M0.0593152,11.3471317
c-0.6725746,0-1.0186567-0.3591423-1.0186567-1.0121269V0.4684002c0-0.6464552,0.346082-1.0186567,1.0251865-1.0186567h2.9057837

v3.7938433c0,0.8227613,0.4113805,1.2276118,1.227612,1.2276118h3.7220149v5.8638062
c0,0.6529846-0.3460822,1.0121269-1.0251865,1.0121269H0.0593152z M4.3167777,3.4851911
c-0.2611938,0-0.3591416-0.1044776-0.3591416-0.3656716v-3.4673507l3.761194,3.8330224H4.3167777z M5.8839421,6.2734375H0.9277854
c-0.2350746,0-0.4113806,0.1763058-0.4113806,0.3983207c0,0.2285452,0.176306,0.404851,0.4113806,0.404851h4.9561567
c0.2285447,0,0.3983207-0.1763058,0.3983207-0.404851C6.2822628,6.4497433,6.1124868,6.2734375,5.8839421,6.2734375z
M5.8839421,8.5523558H0.9277854c-0.2350746,0-0.4113806,0.1828356-0.4113806,0.4113798

c0,0.2220154,0.176306,0.3917913,0.4113806,0.3917913h4.9561567c0.2285447,0,0.3983207-0.169776,0.3983207-0.3917913

C6.2822628,8.7351913,6.1124868,8.5523558,5.8839421,8.5523558z"></path></g></svg> Setting Up Store<wbr data-v-39207972="">Kit Testing in Xcode<!----> Set up your test environment to test in-app purchases with data you configure locally. <!----><!----><!----> <!----> <h3 data-v-3277df5c="" class="title">Continuous Integration and Delivery</h3> <!----><!----><!----> <a data-v-39207972="" href="/documentation/xcode/xcode-

cloud" class="link has-adjacent-elements"> <svg data-v-7f60a732="" data-v-9d2ba25c="" aria-hidden="true" xmlns="http://www.w3.org/2000/svg" class="svg-icon api-reference-icon topic-icon" viewBox="0 0 14 14"><title data-v-7f60a732="">API Reference</title><g data-v-7f60a732="" transform="translate(2.116699, 4.455566)"><path data-v-7f60a732="" d="M-1.2412647-0.767793c0.4863523,0,0.8754342-0.3890819,0.8754342-0.8684863
c0-0.4863524-0.3890819-0.8754342-0.8754342-0.8754342S-2.116699-2.1226318-2.116699-1.6362793
C-2.116699-1.1568749-1.7276171-0.767793-1.2412647-0.767793z M1.829703-1.0804482h9.490819
c0.3126545,0,0.5627785-0.2431761,0.5627785-0.5558312c0-0.319603-0.250124-0.5627792-0.5627785-0.5627792H1.829703
c-0.319603,0-0.5627792,0.2431762-0.5627792,0.5627792C1.2669238-1.3236243,1.5101-1.0804482,1.829703-1.0804482z
M-1.2412647,3.4356809c0.4863523,0,0.8754342-0.3890817,0.8754342-0.8754342s-0.3890819-0.8754343-0.8754342-0.8754343
S-2.116699,2.0738943-2.116699,2.5602467S-1.7276171,3.4356809-1.2412647,3.4356809z M1.829703,3.1230259h9.490819
c0.3126545,0,0.5627785-0.2501242,0.5627785-0.5627792s-0.250124-0.5558312-0.5627785-0.5558312H1.829703
c-0.319603,0-0.5627792,0.243176-0.5627792,0.5558312S1.5101,3.1230259,1.829703,3.1230259z M-1.2412647,7.6391549
c0.4863523,0,0.8754342-0.3960299,0.8754342-0.8754344c0-0.4863524-0.3890819-0.8754339-0.8754342-0.8754339
S-2.116699,6.2773681-2.116699,6.7637205C-2.116699,7.243125-1.7276171,7.6391549-1.2412647,7.6391549z M1.829703,7.3195519
h9.490819c0.3126545,0,0.5627785-0.2431765,0.5627785-0.5558314c0-0.319603-0.250124-0.5627789-0.5627785-0.5627789H1.829703
c-0.319603,0-0.5627792,0.243176-0.5627792,0.5627789C1.2669238,7.0763755,1.5101,7.3195519,1.829703,7.3195519z"></path></g></svg> Xcode Cloud<!----> Automatically build, test, and distribute your apps with Xcode Cloud to verify changes and create high-quality
apps. <!----><!----><!----> <!----> <h3 data-v-3277df5c="" class="title">Distribution</h3> <!----><!----><!----> <a data-v-39207972="" href="/documentation/xcode/preparing-your-app-for-distribution" class="link has-adjacent-elements"> <svg data-v-7f60a732="" data-v-9d2ba25c="" aria-hidden="true" xmlns="http://www.w3.org/2000/svg" class="svg-icon article-icon topic-icon" viewBox="0 0 14 14"><g data-v-7f60a732="" transform="translate(3.616699, 1.608398)"><path data-v-7f60a732="" d="M0.0136063,12.3984375H6.948308c1.3516788,0,2.0242538-0.6856346,2.0242538-2.0438433V4.4254899
c0-0.842351-0.0979481-1.2080226-0.6203365-1.7434704L4.7542777-0.9812267

C4.2580094-1.490555,3.8466287-1.6015625,3.1152854-
1.6015625H0.0136063c-1.3451493,0-2.0242538,0.6921641-
2.0242538,2.0503731
v9.9057837C-2.0106475,11.7193327-
1.3380729,12.3984375,0.0136063,12.3984375z M0.0593152,11.3471317
c-0.6725746,0-1.0186567-0.3591423-1.0186567-1.0121269V0.4684002c0-
0.6464552,0.346082-1.0186567,1.0251865-1.0186567h2.9057837

v3.7938433c0,0.8227613,0.4113805,1.2276118,1.227612,1.2276118h3.722014
9v5.8638062
c0,0.6529846-0.3460822,1.0121269-1.0251865,1.0121269H0.0593152z
M4.3167777,3.4851911
c-0.2611938,0-0.3591416-0.1044776-0.3591416-0.3656716v-
3.4673507l3.761194,3.8330224H4.3167777z
M5.8839421,6.2734375H0.9277854
c-0.2350746,0-0.4113806,0.1763058-
0.4113806,0.3983207c0,0.2285452,0.176306,0.404851,0.4113806,0.404851h4.
9561567
c0.2285447,0,0.3983207-0.1763058,0.3983207-
0.404851C6.2822628,6.4497433,6.1124868,6.2734375,5.8839421,6.2734375z
M5.8839421,8.5523558H0.9277854c-0.2350746,0-0.4113806,0.1828356-
0.4113806,0.4113798

c0,0.2220154,0.176306,0.3917913,0.4113806,0.3917913h4.9561567c0.228544
7,0,0.3983207-0.169776,0.3983207-0.3917913

C6.2822628,8.7351913,6.1124868,8.5523558,5.8839421,8.5523558z"></path>
</g></svg> Preparing Your App for
Distribution<!----><div data-v-39207972=""
class="abstract"><div data-v-702ae484="" data-v-39207972=""
class="content">Configure the information property list and add icons before
you distribute your app. <!----><!----><!----> <!----> <div
data-v-39207972="" data-v-a2aafb2a="" class="link-block topic" data-v-
3277df5c=""><a data-v-39207972=""
href="/documentation/security/notarizing_macos_software_before_distribution"
class="link has-adjacent-elements"><div data-v-9d2ba25c="" data-v-
39207972="" class="topic-icon-wrapper"><svg data-v-7f60a732="" data-v-
9d2ba25c="" aria-hidden="true" xmlns="http://www.w3.org/2000/svg"
class="svg-icon article-icon topic-icon" viewBox="0 0 14 14"><g data-v-
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7f60a732="" d="M0.0136063,12.3984375H6.948308c1.3516788,0,2.0242538-
0.6856346,2.0242538-2.0438433V4.4254899
c0-0.842351-0.0979481-1.2080226-0.6203365-1.7434704L4.7542777-
0.9812267
C4.2580094-1.490555,3.8466287-1.6015625,3.1152854-
1.6015625H0.0136063c-1.3451493,0-2.0242538,0.6921641-
2.0242538,2.0503731
v9.9057837C-2.0106475,11.7193327-
1.3380729,12.3984375,0.0136063,12.3984375z M0.0593152,11.3471317
c-0.6725746,0-1.0186567-0.3591423-1.0186567-1.0121269V0.4684002c0-
0.6464552,0.346082-1.0186567,1.0251865-1.0186567h2.9057837

v3.7938433c0,0.8227613,0.4113805,1.2276118,1.227612,1.2276118h3.722014
9v5.8638062

c0,0.6529846-0.3460822,1.0121269-1.0251865,1.0121269H0.0593152z
M4.3167777,3.4851911
c-0.2611938,0-0.3591416-0.1044776-0.3591416-0.3656716v-
3.4673507l3.761194,3.8330224H4.3167777z
M5.8839421,6.2734375H0.9277854
c-0.2350746,0-0.4113806,0.1763058-
0.4113806,0.3983207c0,0.2285452,0.176306,0.404851,0.4113806,0.404851h4.
9561567
c0.2285447,0,0.3983207-0.1763058,0.3983207-
0.404851C6.2822628,6.4497433,6.1124868,6.2734375,5.8839421,6.2734375z
M5.8839421,8.5523558H0.9277854c-0.2350746,0-0.4113806,0.1828356-
0.4113806,0.4113798

c0,0.2220154,0.176306,0.3917913,0.4113806,0.3917913h4.9561567c0.228544
7,0,0.3983207-0.169776,0.3983207-0.3917913

C6.2822628,8.7351913,6.1124868,8.5523558,5.8839421,8.5523558z"></path>
</g></svg> Notarizing mac<wbr data-v-
39207972="">OS software before distribution<!----><div data-v-
39207972="" class="abstract"><div data-v-702ae484="" data-v-39207972=""
class="content">Give users even more confidence in your macOS software by
submitting it to Apple for notarization. <!----><!----><!----> <!----
> <div data-v-39207972="" data-v-a2aafb2a="" class="link-block topic"
data-v-3277df5c=""><a data-v-39207972=""
href="/documentation/xcode/distributing-your-app-for-beta-testing-and-releases"
class="link has-adjacent-elements"><div data-v-9d2ba25c="" data-v-
39207972="" class="topic-icon-wrapper"><svg data-v-7f60a732="" data-v-
9d2ba25c="" aria-hidden="true" xmlns="http://www.w3.org/2000/svg"
class="svg-icon article-icon topic-icon" viewBox="0 0 14 14"><g data-v-
7f60a732="" transform="translate(3.616699, 1.608398)"><path data-v-
7f60a732="" d="M0.0136063,12.3984375H6.948308c1.3516788,0,2.0242538-
0.6856346,2.0242538-2.0438433V4.4254899
c0-0.842351-0.0979481-1.2080226-0.6203365-1.7434704L4.7542777-
0.9812267
C4.2580094-1.490555,3.8466287-1.6015625,3.1152854-
1.6015625H0.0136063c-1.3451493,0-2.0242538,0.6921641-
2.0242538,2.0503731
v9.9057837C-2.0106475,11.7193327-
1.3380729,12.3984375,0.0136063,12.3984375z M0.0593152,11.3471317
c-0.6725746,0-1.0186567-0.3591423-1.0186567-1.0121269V0.4684002c0-
0.6464552,0.346082-1.0186567,1.0251865-1.0186567h2.9057837

v3.7938433c0,0.8227613,0.4113805,1.2276118,1.227612,1.2276118h3.722014
9v5.8638062
c0,0.6529846-0.3460822,1.0121269-1.0251865,1.0121269H0.0593152z
M4.3167777,3.4851911
c-0.2611938,0-0.3591416-0.1044776-0.3591416-0.3656716v-
3.4673507l3.761194,3.8330224H4.3167777z
M5.8839421,6.2734375H0.9277854
c-0.2350746,0-0.4113806,0.1763058-
0.4113806,0.3983207c0,0.2285452,0.176306,0.404851,0.4113806,0.404851h4.
9561567
c0.2285447,0,0.3983207-0.1763058,0.3983207-
0.404851C6.2822628,6.4497433,6.1124868,6.2734375,5.8839421,6.2734375z

M5.8839421,8.5523558H0.9277854c-0.2350746,0-0.4113806,0.1828356-0.4113806,0.4113798

c0,0.2220154,0.176306,0.3917913,0.4113806,0.3917913h4.9561567c0.2285447,0,0.3983207-0.169776,0.3983207-0.3917913

C6.2822628,8.7351913,6.1124868,8.5523558,5.8839421,8.5523558z"></path></g></svg> Distributing Your App for Beta Testing and Releases<!----> Release your app to beta testers and users. <!----><!----><!----> <!----> <a data-v-39207972="" href="/documentation/xcode/distributing-your-app-to-registered-devices" class="link has-adjacent-elements"> <svg data-v-7f60a732="" data-v-9d2ba25c="" aria-hidden="true" xmlns="http://www.w3.org/2000/svg" class="svg-icon article-icon topic-icon" viewBox="0 0 14 14"><g data-v-7f60a732="" transform="translate(3.616699, 1.608398)"><path data-v-7f60a732="" d="M0.0136063,12.3984375H6.948308c1.3516788,0,2.0242538-0.6856346,2.0242538-2.0438433V4.4254899
c0-0.842351-0.0979481-1.2080226-0.6203365-1.7434704L4.7542777-0.9812267
C4.2580094-1.490555,3.8466287-1.6015625,3.1152854-1.6015625H0.0136063c-1.3451493,0-2.0242538,0.6921641-2.0242538,2.0503731
v9.9057837C-2.0106475,11.7193327-1.3380729,12.3984375,0.0136063,12.3984375z M0.0593152,11.3471317
c-0.6725746,0-1.0186567-0.3591423-1.0186567-1.0121269V0.4684002c0-0.6464552,0.346082-1.0186567,1.0251865-1.0186567h2.9057837

v3.7938433c0,0.8227613,0.4113805,1.2276118,1.227612,1.2276118h3.7220149v5.8638062
c0,0.6529846-0.3460822,1.0121269-1.0251865,1.0121269H0.0593152z M4.3167777,3.4851911
c-0.2611938,0-0.3591416-0.1044776-0.3591416-0.3656716v-3.4673507l3.761194,3.8330224H4.3167777z M5.8839421,6.2734375H0.9277854
c-0.2350746,0-0.4113806,0.1763058-0.4113806,0.3983207c0,0.2285452,0.176306,0.404851,0.4113806,0.404851h4.9561567
c0.2285447,0,0.3983207-0.1763058,0.3983207-0.404851C6.2822628,6.4497433,6.1124868,6.2734375,5.8839421,6.2734375z
M5.8839421,8.5523558H0.9277854c-0.2350746,0-0.4113806,0.1828356-0.4113806,0.4113798

c0,0.2220154,0.176306,0.3917913,0.4113806,0.3917913h4.9561567c0.2285447,0,0.3983207-0.169776,0.3983207-0.3917913

C6.2822628,8.7351913,6.1124868,8.5523558,5.8839421,8.5523558z"></path></g></svg> Distributing Your App to Registered Devices<!----> Register devices in your developer account and deploy your

app to them for testing. <!----><!----><!----> <!----> <a data-v-39207972="" href="/documentation/xcode/using-the-latest-code-signature-format" class="link has-adjacent-elements"> <svg data-v-7f60a732="" data-v-9d2ba25c="" aria-hidden="true" xmlns="http://www.w3.org/2000/svg" class="svg-icon article-icon topic-icon" viewBox="0 0 14 14"><g data-v-7f60a732="" transform="translate(3.616699, 1.608398)"><path data-v-7f60a732="" d="M0.0136063,12.3984375H6.948308c1.3516788,0,2.0242538-0.6856346,2.0242538-2.0438433V4.4254899
c0-0.842351-0.0979481-1.2080226-0.6203365-1.7434704L4.7542777-0.9812267
C4.2580094-1.490555,3.8466287-1.6015625,3.1152854-1.6015625H0.0136063c-1.3451493,0-2.0242538,0.6921641-2.0242538,2.0503731
v9.9057837C-2.0106475,11.7193327-1.3380729,12.3984375,0.0136063,12.3984375z M0.0593152,11.3471317
c-0.6725746,0-1.0186567-0.3591423-1.0186567-1.0121269V0.4684002c0-0.6464552,0.346082-1.0186567,1.0251865-1.0186567h2.9057837

v3.7938433c0,0.8227613,0.4113805,1.2276118,1.227612,1.2276118h3.7220149v5.8638062
c0,0.6529846-0.3460822,1.0121269-1.0251865,1.0121269H0.0593152z M4.3167777,3.4851911
c-0.2611938,0-0.3591416-0.1044776-0.3591416-0.3656716v-3.4673507l3.761194,3.8330224H4.3167777z M5.8839421,6.2734375H0.9277854
c-0.2350746,0-0.4113806,0.1763058-0.4113806,0.3983207c0,0.2285452,0.176306,0.404851,0.4113806,0.404851h4.9561567
c0.2285447,0,0.3983207-0.1763058,0.3983207-0.404851C6.2822628,6.4497433,6.1124868,6.2734375,5.8839421,6.2734375z
M5.8839421,8.5523558H0.9277854c-0.2350746,0-0.4113806,0.1828356-0.4113806,0.4113798

c0,0.2220154,0.176306,0.3917913,0.4113806,0.3917913h4.9561567c0.2285447,0,0.3983207-0.169776,0.3983207-0.3917913

C6.2822628,8.7351913,6.1124868,8.5523558,5.8839421,8.5523558z"></path></g></svg> Using the Latest Code Signature Format<!----> Update legacy app code signatures so your app runs on current OS releases. <!----><!----><!----> <!----> <a data-v-39207972="" href="/documentation/xcode/testing-a-release-build" class="link has-adjacent-elements"> <svg data-v-7f60a732="" data-v-9d2ba25c="" aria-hidden="true" xmlns="http://www.w3.org/2000/svg" class="svg-icon article-icon topic-icon" viewBox="0 0 14 14"><g data-v-7f60a732="" transform="translate(3.616699, 1.608398)"><path data-v-7f60a732="" d="M0.0136063,12.3984375H6.948308c1.3516788,0,2.0242538-0.6856346,2.0242538-2.0438433V4.4254899

c0-0.842351-0.0979481-1.2080226-0.6203365-1.7434704L4.7542777-0.9812267
C4.2580094-1.490555,3.8466287-1.6015625,3.1152854-1.6015625H0.0136063c-1.3451493,0-2.0242538,0.6921641-2.0242538,2.0503731
v9.9057837C-2.0106475,11.7193327-1.3380729,12.3984375,0.0136063,12.3984375z M0.0593152,11.3471317
c-0.6725746,0-1.0186567-0.3591423-1.0186567-1.0121269V0.4684002c0-0.6464552,0.346082-1.0186567,1.0251865-1.0186567h2.9057837

v3.7938433c0,0.8227613,0.4113805,1.2276118,1.227612,1.2276118h3.7220149v5.8638062
c0,0.6529846-0.3460822,1.0121269-1.0251865,1.0121269H0.0593152z M4.3167777,3.4851911
c-0.2611938,0-0.3591416-0.1044776-0.3591416-0.3656716v-3.4673507l3.761194,3.8330224H4.3167777z M5.8839421,6.2734375H0.9277854
c-0.2350746,0-0.4113806,0.1763058-0.4113806,0.3983207c0,0.2285452,0.176306,0.404851,0.4113806,0.404851h4.9561567
c0.2285447,0,0.3983207-0.1763058,0.3983207-0.404851C6.2822628,6.4497433,6.1124868,6.2734375,5.8839421,6.2734375z
M5.8839421,8.5523558H0.9277854c-0.2350746,0-0.4113806,0.1828356-0.4113806,0.4113798

c0,0.2220154,0.176306,0.3917913,0.4113806,0.3917913h4.9561567c0.2285447,0,0.3983207-0.169776,0.3983207-0.3917913

C6.2822628,8.7351913,6.1124868,8.5523558,5.8839421,8.5523558z"></path></g></svg> Testing a Release Build<!----> Run your app in simulated user environments to discover and identify deployment errors. <!----><!----><!----> <!----> <a data-v-39207972="" href="/documentation/xcode/testing-a-beta-os" class="link has-adjacent-elements"> <svg data-v-7f60a732="" data-v-9d2ba25c="" aria-hidden="true" xmlns="http://www.w3.org/2000/svg" class="svg-icon article-icon topic-icon" viewBox="0 0 14 14"><g data-v-7f60a732="" transform="translate(3.616699, 1.608398)"><path data-v-7f60a732="" d="M0.0136063,12.3984375H6.948308c1.3516788,0,2.0242538-0.6856346,2.0242538-2.0438433V4.4254899
c0-0.842351-0.0979481-1.2080226-0.6203365-1.7434704L4.7542777-0.9812267
C4.2580094-1.490555,3.8466287-1.6015625,3.1152854-1.6015625H0.0136063c-1.3451493,0-2.0242538,0.6921641-2.0242538,2.0503731
v9.9057837C-2.0106475,11.7193327-1.3380729,12.3984375,0.0136063,12.3984375z M0.0593152,11.3471317
c-0.6725746,0-1.0186567-0.3591423-1.0186567-1.0121269V0.4684002c0-0.6464552,0.346082-1.0186567,1.0251865-1.0186567h2.9057837

v3.7938433c0,0.8227613,0.4113805,1.2276118,1.227612,1.2276118h3.722014
9v5.8638062
c0,0.6529846-0.3460822,1.0121269-1.0251865,1.0121269H0.0593152z
M4.3167777,3.4851911
c-0.2611938,0-0.3591416-0.1044776-0.3591416-0.3656716v-
3.4673507l3.761194,3.8330224H4.3167777z
M5.8839421,6.2734375H0.9277854
c-0.2350746,0-0.4113806,0.1763058-
0.4113806,0.3983207c0,0.2285452,0.176306,0.404851,0.4113806,0.404851h4.
9561567
c0.2285447,0,0.3983207-0.1763058,0.3983207-
0.404851C6.2822628,6.4497433,6.1124868,6.2734375,5.8839421,6.2734375z
M5.8839421,8.5523558H0.9277854c-0.2350746,0-0.4113806,0.1828356-
0.4113806,0.4113798

c0,0.2220154,0.176306,0.3917913,0.4113806,0.3917913h4.9561567c0.228544
7,0,0.3983207-0.169776,0.3983207-0.3917913

C6.2822628,8.7351913,6.1124868,8.5523558,5.8839421,8.5523558z"></path>
</g></svg> Testing a Beta OS<!----
> <div data-v-702ae484=""
data-v-39207972="" class="content">Manage unintended differences in your
app by testing beta operating-system (OS) releases. <!----><!----><!----
> <!----> <div data-v-39207972="" data-v-a2aafb2a=""
class="link-block topic" data-v-3277df5c=""><a data-v-39207972=""
href="/documentation/xcode/signing-a-daemon-with-a-restricted-entitlement"
class="link has-adjacent-elements"><div data-v-9d2ba25c="" data-v-
39207972="" class="topic-icon-wrapper"><svg data-v-7f60a732="" data-v-
9d2ba25c="" aria-hidden="true" xmlns="http://www.w3.org/2000/svg"
class="svg-icon article-icon topic-icon" viewBox="0 0 14 14"><g data-v-
7f60a732="" transform="translate(3.616699, 1.608398)"><path data-v-
7f60a732="" d="M0.0136063,12.3984375H6.948308c1.3516788,0,2.0242538-
0.6856346,2.0242538-2.0438433V4.4254899
c0-0.842351-0.0979481-1.2080226-0.6203365-1.7434704L4.7542777-
0.9812267
C4.2580094-1.490555,3.8466287-1.6015625,3.1152854-
1.6015625H0.0136063c-1.3451493,0-2.0242538,0.6921641-
2.0242538,2.0503731
v9.9057837C-2.0106475,11.7193327-
1.3380729,12.3984375,0.0136063,12.3984375z M0.0593152,11.3471317
c-0.6725746,0-1.0186567-0.3591423-1.0186567-1.0121269V0.4684002c0-
0.6464552,0.346082-1.0186567,1.0251865-1.0186567h2.9057837

v3.7938433c0,0.8227613,0.4113805,1.2276118,1.227612,1.2276118h3.722014
9v5.8638062
c0,0.6529846-0.3460822,1.0121269-1.0251865,1.0121269H0.0593152z
M4.3167777,3.4851911
c-0.2611938,0-0.3591416-0.1044776-0.3591416-0.3656716v-
3.4673507l3.761194,3.8330224H4.3167777z
M5.8839421,6.2734375H0.9277854
c-0.2350746,0-0.4113806,0.1763058-
0.4113806,0.3983207c0,0.2285452,0.176306,0.404851,0.4113806,0.404851h4.
9561567

c0.2285447,0,0.3983207-0.1763058,0.3983207-
0.404851C6.2822628,6.4497433,6.1124868,6.2734375,5.8839421,6.2734375z
M5.8839421,8.5523558H0.9277854c-0.2350746,0-0.4113806,0.1828356-
0.4113806,0.4113798

c0,0.2220154,0.176306,0.3917913,0.4113806,0.3917913h4.9561567c0.228544
7,0,0.3983207-0.169776,0.3983207-0.3917913

C6.2822628,8.7351913,6.1124868,8.5523558,5.8839421,8.5523558z"></path>
</g></svg> Signing a Daemon with a
Restricted Entitlement<!----><div data-v-39207972=""
class="abstract"><div data-v-702ae484="" data-v-39207972=""
class="content">Wrap a daemon in an app-like structure to use an entitlement
that’s authorized by a provisioning
profile. <!----><!----><!----> <!----> <div data-v-
39207972="" data-v-a2aafb2a="" class="link-block topic" data-v-
3277df5c=""><a data-v-39207972="" href="/documentation/Technotes/tn3125-
inside-code-signing-provisioning-profiles" class="link has-adjacent-
elements"><div data-v-9d2ba25c="" data-v-39207972="" class="topic-icon-
wrapper"><svg data-v-7f60a732="" data-v-9d2ba25c="" aria-hidden="true"
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C4.2580094-1.490555,3.8466287-1.6015625,3.1152854-
1.6015625H0.0136063c-1.3451493,0-2.0242538,0.6921641-
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v9.9057837C-2.0106475,11.7193327-
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c-0.6725746,0-1.0186567-0.3591423-1.0186567-1.0121269V0.4684002c0-
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M5.8839421,6.2734375H0.9277854
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9561567
c0.2285447,0,0.3983207-0.1763058,0.3983207-
0.404851C6.2822628,6.4497433,6.1124868,6.2734375,5.8839421,6.2734375z
M5.8839421,8.5523558H0.9277854c-0.2350746,0-0.4113806,0.1828356-
0.4113806,0.4113798

c0,0.2220154,0.176306,0.3917913,0.4113806,0.3917913h4.9561567c0.228544
7,0,0.3983207-0.169776,0.3983207-0.3917913

C6.2822628,8.7351913,6.1124868,8.5523558,5.8839421,8.5523558z"></path>

</g></svg> TN3125: Inside Code Signing: Provisioning Profiles<!----> Learn how provisioning profiles enable third-party code to run on Apple platforms. <!----><!----><!----> <!----> <h3 data-v-3277df5c="" class="title">Documentation</h3> <!----><!----><!----> <a data-v-39207972="" href="/documentation/xcode/slothcreator_building_docc_documentation_in_xcode" class="link has-adjacent-elements"> <svg data-v-7f60a732="" data-v-9d2ba25c="" aria-hidden="true" xmlns="http://www.w3.org/2000/svg" class="svg-icon curly-brackets-icon topic-icon" viewBox="0 0 14 14"><g data-v-7f60a732="" transform="translate(-2.000000, -1.000000)"><g data-v-7f60a732="" transform="translate(2.616699, 1.948730)"><path data-v-7f60a732="" d="M0.0714366,6.0411005c0,0.3932204,0.2237288,0.6711864,0.6915254,0.7457628

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05z"></path></g></g></svg> Sloth<wbr
data-v-39207972="">Creator: Building Doc<wbr data-v-39207972="">C
Documentation in Xcode<!----><div data-v-39207972=""
class="abstract"><div data-v-702ae484="" data-v-39207972=""
class="content">Build DocC documentation for a Swift package that contains a
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2.0242538,2.0503731
v9.9057837C-2.0106475,11.7193327-
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9561567
c0.2285447,0,0.3983207-0.1763058,0.3983207-
0.404851C6.2822628,6.4497433,6.1124868,6.2734375,5.8839421,6.2734375z

M5.8839421,8.5523558H0.9277854c-0.2350746,0-0.4113806,0.1828356-0.4113806,0.4113798

c0,0.2220154,0.176306,0.3917913,0.4113806,0.3917913h4.9561567c0.2285447,0,0.3983207-0.169776,0.3983207-0.3917913

C6.2822628,8.7351913,6.1124868,8.5523558,5.8839421,8.5523558z"></path></g></svg> Documenting apps, frameworks, and packages<!----> Create developer documentation from in-source comments, add articles with code snippets, and add tutorials for a guided learning experience. <!----><!----><!----> <!----> <a data-v-39207972="" href="/documentation/xcode/writing-symbol-documentation-in-your-source-files" class="link has-adjacent-elements"> <svg data-v-7f60a732="" data-v-9d2ba25c="" aria-hidden="true" xmlns="http://www.w3.org/2000/svg" class="svg-icon article-icon topic-icon" viewBox="0 0 14 14"><g data-v-7f60a732="" transform="translate(3.616699, 1.608398)"><path data-v-7f60a732="" d="M0.0136063,12.3984375H6.948308c1.3516788,0,2.0242538-0.6856346,2.0242538-2.0438433V4.4254899
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C4.2580094-1.490555,3.8466287-1.6015625,3.1152854-1.6015625H0.0136063c-1.3451493,0-2.0242538,0.6921641-2.0242538,2.0503731
v9.9057837C-2.0106475,11.7193327-1.3380729,12.3984375,0.0136063,12.3984375z M0.0593152,11.3471317
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c0,0.6529846-0.3460822,1.0121269-1.0251865,1.0121269H0.0593152z M4.3167777,3.4851911
c-0.2611938,0-0.3591416-0.1044776-0.3591416-0.3656716v-3.4673507l3.761194,3.8330224H4.3167777z M5.8839421,6.2734375H0.9277854
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M5.8839421,8.5523558H0.9277854c-0.2350746,0-0.4113806,0.1828356-0.4113806,0.4113798

c0,0.2220154,0.176306,0.3917913,0.4113806,0.3917913h4.9561567c0.2285447,0,0.3983207-0.169776,0.3983207-0.3917913

C6.2822628,8.7351913,6.1124868,8.5523558,5.8839421,8.5523558z"></path></g></svg> Writing Symbol Documentation in Your Source Files<!----><div data-v-39207972=""

class="abstract"> Add reference documentation to your symbols that explains how to use them. <!----><!----><!----> <!----> <a data-v-39207972="" href="/documentation/xcode/adding-structure-to-your-documentation-pages" class="link has-adjacent-elements"> <svg data-v-7f60a732="" data-v-9d2ba25c="" aria-hidden="true" xmlns="http://www.w3.org/2000/svg" class="svg-icon article-icon topic-icon" viewBox="0 0 14 14"><g data-v-7f60a732="" transform="translate(3.616699, 1.608398)"><path data-v-7f60a732="" d="M0.0136063,12.3984375H6.948308c1.3516788,0,2.0242538-0.6856346,2.0242538-2.0438433V4.4254899
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C4.2580094-1.490555,3.8466287-1.6015625,3.1152854-1.6015625H0.0136063c-1.3451493,0-2.0242538,0.6921641-2.0242538,2.0503731
v9.9057837C-2.0106475,11.7193327-1.3380729,12.3984375,0.0136063,12.3984375z M0.0593152,11.3471317
c-0.6725746,0-1.0186567-0.3591423-1.0186567-1.0121269V0.4684002c0-0.6464552,0.346082-1.0186567,1.0251865-1.0186567h2.9057837

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c0,0.6529846-0.3460822,1.0121269-1.0251865,1.0121269H0.0593152z M4.3167777,3.4851911
c-0.2611938,0-0.3591416-0.1044776-0.3591416-0.3656716v-3.4673507l3.761194,3.8330224H4.3167777z M5.8839421,6.2734375H0.9277854
c-0.2350746,0-0.4113806,0.1763058-0.4113806,0.3983207c0,0.2285452,0.176306,0.404851,0.4113806,0.404851h4.9561567
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M5.8839421,8.5523558H0.9277854c-0.2350746,0-0.4113806,0.1828356-0.4113806,0.4113798

c0,0.2220154,0.176306,0.3917913,0.4113806,0.3917913h4.9561567c0.2285447,0,0.3983207-0.169776,0.3983207-0.3917913

C6.2822628,8.7351913,6.1124868,8.5523558,5.8839421,8.5523558z"></path></g></svg> Adding Structure to Your Documentation Pages<!----> Make symbols easier to find by arranging them into groups and collections. <!----><!----><!----> <!----> <a data-v-39207972="" href="/documentation/xcode/adding-supplemental-content-to-a-documentation-catalog" class="link has-adjacent-elements"> <svg data-v-7f60a732="" data-v-9d2ba25c="" aria-hidden="true" xmlns="http://www.w3.org/2000/svg" class="svg-icon article-icon topic-icon" viewBox="0 0 14 14"><g data-v-7f60a732="" transform="translate(3.616699,

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9561567
c0.2285447,0,0.3983207-0.1763058,0.3983207-
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C6.2822628,8.7351913,6.1124868,8.5523558,5.8839421,8.5523558z"></path>
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to a Documentation Catalog<!----><div data-v-39207972=""
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content" class="link has-adjacent-elements"><div data-v-9d2ba25c="" data-v-
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v9.9057837C-2.0106475,11.7193327-
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c-0.2611938,0-0.3591416-0.1044776-0.3591416-0.3656716v-3.4673507l3.761194,3.8330224H4.3167777z M5.8839421,6.2734375H0.9277854
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c0.2285447,0,0.3983207-0.1763058,0.3983207-0.404851C6.2822628,6.4497433,6.1124868,6.2734375,5.8839421,6.2734375z
M5.8839421,8.5523558H0.9277854c-0.2350746,0-0.4113806,0.1828356-0.4113806,0.4113798

c0,0.2220154,0.176306,0.3917913,0.4113806,0.3917913h4.9561567c0.2285447,0,0.3983207-0.169776,0.3983207-0.3917913

C6.2822628,8.7351913,6.1124868,8.5523558,5.8839421,8.5523558z"></path></g></svg> Formatting Your Documentation Content<!----> Enhance your content’s presentation with special formatting and styling for text, links, and other page elements. <!----><!----><!----> <!----> <a data-v-39207972="" href="/documentation/xcode/distributing-documentation-to-external-developers" class="link has-adjacent-elements"> <svg data-v-7f60a732="" data-v-9d2ba25c="" aria-hidden="true" xmlns="http://www.w3.org/2000/svg" class="svg-icon article-icon topic-icon" viewBox="0 0 14 14"><g data-v-7f60a732="" transform="translate(3.616699, 1.608398)"><path data-v-7f60a732="" d="M0.0136063,12.3984375H6.948308c1.3516788,0,2.0242538-0.6856346,2.0242538-2.0438433V4.4254899
c0-0.842351-0.0979481-1.2080226-0.6203365-1.7434704L4.7542777-0.9812267
C4.2580094-1.490555,3.8466287-1.6015625,3.1152854-1.6015625H0.0136063c-1.3451493,0-2.0242538,0.6921641-2.0242538,2.0503731
v9.9057837C-2.0106475,11.7193327-1.3380729,12.3984375,0.0136063,12.3984375z M0.0593152,11.3471317
c-0.6725746,0-1.0186567-0.3591423-1.0186567-1.0121269V0.4684002c0-0.6464552,0.346082-1.0186567,1.0251865-1.0186567h2.9057837

v3.7938433c0,0.8227613,0.4113805,1.2276118,1.227612,1.2276118h3.7220149v5.8638062
c0,0.6529846-0.3460822,1.0121269-1.0251865,1.0121269H0.0593152z M4.3167777,3.4851911
c-0.2611938,0-0.3591416-0.1044776-0.3591416-0.3656716v-3.4673507l3.761194,3.8330224H4.3167777z M5.8839421,6.2734375H0.9277854

c-0.2350746,0-0.4113806,0.1763058-0.4113806,0.3983207c0,0.2285452,0.176306,0.404851,0.4113806,0.404851h4.9561567
c0.2285447,0,0.3983207-0.1763058,0.3983207-0.404851C6.2822628,6.4497433,6.1124868,6.2734375,5.8839421,6.2734375z
M5.8839421,8.5523558H0.9277854c-0.2350746,0-0.4113806,0.1828356-0.4113806,0.4113798

c0,0.2220154,0.176306,0.3917913,0.4113806,0.3917913h4.9561567c0.2285447,0,0.3983207-0.169776,0.3983207-0.3917913

C6.2822628,8.7351913,6.1124868,8.5523558,5.8839421,8.5523558z"></path></g></svg> Distributing Documentation to External Developers<!----> Share your documentation directly with Xcode users or host it on a web server. <!----><!----><!----> <!----> <h3 data-v-3277df5c="" class="title">Code Sharing</h3> <!----><!----><!----> <a data-v-39207972="" href="/documentation/xcode/swift-packages" class="link has-adjacent-elements"> <svg data-v-7f60a732="" data-v-9d2ba25c="" aria-hidden="true" xmlns="http://www.w3.org/2000/svg" class="svg-icon api-reference-icon topic-icon" viewBox="0 0 14 14"><title data-v-7f60a732="">API Reference</title><g data-v-7f60a732="" transform="translate(2.116699, 4.455566)"><path data-v-7f60a732="" d="M-1.2412647-0.767793c0.4863523,0,0.8754342-0.3890819,0.8754342-0.8684863
c0-0.4863524-0.3890819-0.8754342-0.8754342-0.8754342S-2.116699-2.1226318-2.116699-1.6362793
C-2.116699-1.1568749-1.7276171-0.767793-1.2412647-0.767793z M1.829703-1.0804482h9.490819
c0.3126545,0,0.5627785-0.2431761,0.5627785-0.5558312c0-0.319603-0.250124-0.5627792-0.5627785-0.5627792H1.829703
c-0.319603,0-0.5627792,0.2431762-0.5627792,0.5627792C1.2669238-1.3236243,1.5101-1.0804482,1.829703-1.0804482z
M-1.2412647,3.4356809c0.4863523,0,0.8754342-0.3890817,0.8754342-0.8754342s-0.3890819-0.8754343-0.8754342-0.8754343
S-2.116699,2.0738943-2.116699,2.5602467S-1.7276171,3.4356809-1.2412647,3.4356809z M1.829703,3.1230259h9.490819
c0.3126545,0,0.5627785-0.2501242,0.5627785-0.5627792s-0.250124-0.5558312-0.5627785-0.5558312H1.829703
c-0.319603,0-0.5627792,0.243176-0.5627792,0.5558312S1.5101,3.1230259,1.829703,3.1230259z M-1.2412647,7.6391549
c0.4863523,0,0.8754342-0.3960299,0.8754342-0.8754344c0-0.4863524-0.3890819-0.8754339-0.8754342-0.8754339
S-2.116699,6.2773681-2.116699,6.7637205C-2.116699,7.243125-1.7276171,7.6391549-1.2412647,7.6391549z M1.829703,7.3195519
h9.490819c0.3126545,0,0.5627785-0.2431765,0.5627785-0.5558314c0-0.319603-0.250124-0.5627789-0.5627785-0.5627789H1.829703

c-0.319603,0-0.5627792,0.243176-0.5627792,0.5627789C1.2669238,7.0763755,1.5101,7.3195519,1.829703,7.3195519z"></path></g></svg> Swift Packages<!----> Create reusable code, organize it in a lightweight way, and share it across Xcode projects and with other developers. <!----><!----><!----> <!----> <h3 data-v-3277df5c="" class="title">Performance</h3> <!----><!----><!----> <a data-v-39207972="" href="/documentation/xcode/improving-your-app-s-performance" class="link has-adjacent-elements"> <svg data-v-7f60a732="" data-v-9d2ba25c="" aria-hidden="true" xmlns="http://www.w3.org/2000/svg" class="svg-icon api-reference-icon topic-icon" viewBox="0 0 14 14"><title data-v-7f60a732="">API Reference</title><g data-v-7f60a732="" transform="translate(2.116699, 4.455566)"><path data-v-7f60a732="" d="M-1.2412647-0.767793c0.4863523,0,0.8754342-0.3890819,0.8754342-0.8684863
c0-0.4863524-0.3890819-0.8754342-0.8754342-0.8754342S-2.116699-2.1226318-2.116699-1.6362793
C-2.116699-1.1568749-1.7276171-0.767793-1.2412647-0.767793z M1.829703-1.0804482h9.490819
c0.3126545,0,0.5627785-0.2431761,0.5627785-0.5558312c0-0.319603-0.250124-0.5627792-0.5627785-0.5627792H1.829703
c-0.319603,0-0.5627792,0.2431762-0.5627792,0.5627792C1.2669238-1.3236243,1.5101-1.0804482,1.829703-1.0804482z
M-1.2412647,3.4356809c0.4863523,0,0.8754342-0.3890817,0.8754342-0.8754342s-0.3890819-0.8754343-0.8754342-0.8754343
S-2.116699,2.0738943-2.116699,2.5602467S-1.7276171,3.4356809-1.2412647,3.4356809z M1.829703,3.1230259h9.490819
c0.3126545,0,0.5627785-0.2501242,0.5627785-0.5627792s-0.250124-0.5558312-0.5627785-0.5558312H1.829703
c-0.319603,0-0.5627792,0.243176-0.5627792,0.5558312S1.5101,3.1230259,1.829703,3.1230259z M-1.2412647,7.6391549
c0.4863523,0,0.8754342-0.3960299,0.8754342-0.8754344c0-0.4863524-0.3890819-0.8754339-0.8754342-0.8754339
S-2.116699,6.2773681-2.116699,6.7637205C-2.116699,7.243125-1.7276171,7.6391549-1.2412647,7.6391549z M1.829703,7.3195519
h9.490819c0.3126545,0,0.5627785-0.2431765,0.5627785-0.5558314c0-0.319603-0.250124-0.5627789-0.5627785-0.5627789H1.829703
c-0.319603,0-0.5627792,0.243176-0.5627792,0.5627789C1.2669238,7.0763755,1.5101,7.3195519,1.829703,7.3195519z"></path></g></svg> Improving your app’s performance<!----> Model, measure, and boost the performance of your app by using a continuous-improvement cycle. <!----><!----><!----> <!----> <a data-v-39207972="" href="/documentation/xcode/analyzing-the-performance-of-your-shipping-app"

class="link has-adjacent-elements"> <svg data-v-7f60a732="" data-v-9d2ba25c="" aria-hidden="true" xmlns="http://www.w3.org/2000/svg" class="svg-icon api-reference-icon topic-icon" viewBox="0 0 14 14"><title data-v-7f60a732="">API Reference</title><g data-v-7f60a732="" transform="translate(2.116699, 4.455566)"><path data-v-7f60a732="" d="M-1.2412647-0.767793c0.4863523,0,0.8754342-0.3890819,0.8754342-0.8684863
c0-0.4863524-0.3890819-0.8754342-0.8754342-0.8754342S-2.116699-2.1226318-2.116699-1.6362793
C-2.116699-1.1568749-1.7276171-0.767793-1.2412647-0.767793z M1.829703-1.0804482h9.490819
c0.3126545,0,0.5627785-0.2431761,0.5627785-0.5558312c0-0.319603-0.250124-0.5627792-0.5627785-0.5627792H1.829703
c-0.319603,0-0.5627792,0.2431762-0.5627792,0.5627792C1.2669238-1.3236243,1.5101-1.0804482,1.829703-1.0804482z
M-1.2412647,3.4356809c0.4863523,0,0.8754342-0.3890817,0.8754342-0.8754342s-0.3890819-0.8754343-0.8754342-0.8754343
S-2.116699,2.0738943-2.116699,2.5602467S-1.7276171,3.4356809-1.2412647,3.4356809z M1.829703,3.1230259h9.490819
c0.3126545,0,0.5627785-0.2501242,0.5627785-0.5627792s-0.250124-0.5558312-0.5627785-0.5558312H1.829703
c-0.319603,0-0.5627792,0.243176-0.5627792,0.5558312S1.5101,3.1230259,1.829703,3.1230259z M-1.2412647,7.6391549
c0.4863523,0,0.8754342-0.3960299,0.8754342-0.8754344c0-0.4863524-0.3890819-0.8754339-0.8754342-0.8754339
S-2.116699,6.2773681-2.116699,6.7637205C-2.116699,7.243125-1.7276171,7.6391549-1.2412647,7.6391549z M1.829703,7.3195519
h9.490819c0.3126545,0,0.5627785-0.2431765,0.5627785-0.5558314c0-0.319603-0.250124-0.5627789-0.5627785-0.5627789H1.829703
c-0.319603,0-0.5627792,0.243176-0.5627792,0.5627789C1.2669238,7.0763755,1.5101,7.3195519,1.829703,7.3195519z"></path></g></svg> Analyzing the Performance of Your Shipping App<!----> View power and performance metrics for apps you distribute through the App Store. <!----><!----><!----> <!----> <a data-v-39207972="" href="/documentation/xcode/reducing-your-app-s-size" class="link has-adjacent-elements"> <svg data-v-7f60a732="" data-v-9d2ba25c="" aria-hidden="true" xmlns="http://www.w3.org/2000/svg" class="svg-icon api-reference-icon topic-icon" viewBox="0 0 14 14"><title data-v-7f60a732="">API Reference</title><g data-v-7f60a732="" transform="translate(2.116699, 4.455566)"><path data-v-7f60a732="" d="M-1.2412647-0.767793c0.4863523,0,0.8754342-0.3890819,0.8754342-0.8684863
c0-0.4863524-0.3890819-0.8754342-0.8754342-0.8754342S-2.116699-2.1226318-2.116699-1.6362793
C-2.116699-1.1568749-1.7276171-0.767793-1.2412647-0.767793z M1.829703-1.0804482h9.490819
c0.3126545,0,0.5627785-0.2431761,0.5627785-0.5558312c0-0.319603-0.250124-0.5627792-0.5627785-0.5627792H1.829703
c-0.319603,0-0.5627792,0.2431762-0.5627792,0.5627792C1.2669238-1.3236243,1.5101-1.0804482,1.829703-1.0804482z

M-1.2412647,3.4356809c0.4863523,0,0.8754342-0.3890817,0.8754342-0.8754342s-0.3890819-0.8754343-0.8754342-0.8754343
S-2.116699,2.0738943-2.116699,2.5602467S-1.7276171,3.4356809-1.2412647,3.4356809z M1.829703,3.1230259h9.490819
c0.3126545,0,0.5627785-0.2501242,0.5627785-0.5627792s-0.250124-0.5558312-0.5627785-0.5558312H1.829703
c-0.319603,0-0.5627792,0.243176-0.5627792,0.5558312S1.5101,3.1230259,1.829703,3.1230259z M-1.2412647,7.6391549
c0.4863523,0,0.8754342-0.3960299,0.8754342-0.8754344c0-0.4863524-0.3890819-0.8754339-0.8754342-0.8754339
S-2.116699,6.2773681-2.116699,6.7637205C-2.116699,7.243125-1.7276171,7.6391549-1.2412647,7.6391549z M1.829703,7.3195519
h9.490819c0.3126545,0,0.5627785-0.2431765,0.5627785-0.5558314c0-0.319603-0.250124-0.5627789-0.5627785-0.5627789H1.829703
c-0.319603,0-0.5627792,0.243176-0.5627792,0.5627789C1.2669238,7.0763755,1.5101,7.3195519,1.829703,7.3195519z"></path></g></svg> Reducing Your App’s Size<!----> Measure your app’s size, optimize its assets and settings, and adopt technologies that help streamline installation over a mobile internet connection. <!----><!----><!----> <!----> <a data-v-39207972="" href="/documentation/xcode/improving-the-speed-of-incremental-builds" class="link has-adjacent-elements"> <svg data-v-7f60a732="" data-v-9d2ba25c="" aria-hidden="true" xmlns="http://www.w3.org/2000/svg" class="svg-icon article-icon topic-icon" viewBox="0 0 14 14"><g data-v-7f60a732="" transform="translate(3.616699, 1.608398)"><path data-v-7f60a732="" d="M0.0136063,12.3984375H6.948308c1.3516788,0,2.0242538-0.6856346,2.0242538-2.0438433V4.4254899
c0-0.842351-0.0979481-1.2080226-0.6203365-1.7434704L4.7542777-0.9812267
C4.2580094-1.490555,3.8466287-1.6015625,3.1152854-1.6015625H0.0136063c-1.3451493,0-2.0242538,0.6921641-2.0242538,2.0503731
v9.9057837C-2.0106475,11.7193327-1.3380729,12.3984375,0.0136063,12.3984375z M0.0593152,11.3471317
c-0.6725746,0-1.0186567-0.3591423-1.0186567-1.0121269V0.4684002c0-0.6464552,0.346082-1.0186567,1.0251865-1.0186567h2.9057837

v3.7938433c0,0.8227613,0.4113805,1.2276118,1.227612,1.2276118h3.7220149v5.8638062
c0,0.6529846-0.3460822,1.0121269-1.0251865,1.0121269H0.0593152z M4.3167777,3.4851911
c-0.2611938,0-0.3591416-0.1044776-0.3591416-0.3656716v-3.4673507l3.761194,3.8330224H4.3167777z M5.8839421,6.2734375H0.9277854
c-0.2350746,0-0.4113806,0.1763058-0.4113806,0.3983207c0,0.2285452,0.176306,0.404851,0.4113806,0.404851h4.9561567
c0.2285447,0,0.3983207-0.1763058,0.3983207-0.404851C6.2822628,6.4497433,6.1124868,6.2734375,5.8839421,6.2734375z

M5.8839421,8.5523558H0.9277854c-0.2350746,0-0.4113806,0.1828356-0.4113806,0.4113798

c0,0.2220154,0.176306,0.3917913,0.4113806,0.3917913h4.9561567c0.2285447,0,0.3983207-0.169776,0.3983207-0.3917913

C6.2822628,8.7351913,6.1124868,8.5523558,5.8839421,8.5523558z"></path></g></svg> Improving the Speed of Incremental Builds<!----> Tell the Xcode build system about your project’s target-related dependencies, and reduce the compiler workload during each build cycle. <!----><!----><!----> <!----> <a data-v-39207972="" href="/documentation/xcode/improving-build-efficiency-with-good-coding-practices" class="link has-adjacent-elements"> <svg data-v-7f60a732="" data-v-9d2ba25c="" aria-hidden="true" xmlns="http://www.w3.org/2000/svg" class="svg-icon article-icon topic-icon" viewBox="0 0 14 14"><g data-v-7f60a732="" transform="translate(3.616699, 1.608398)"><path data-v-7f60a732="" d="M0.0136063,12.3984375H6.948308c1.3516788,0,2.0242538-0.6856346,2.0242538-2.0438433V4.4254899
c0-0.842351-0.0979481-1.2080226-0.6203365-1.7434704L4.7542777-0.9812267
C4.2580094-1.490555,3.8466287-1.6015625,3.1152854-1.6015625H0.0136063c-1.3451493,0-2.0242538,0.6921641-2.0242538,2.0503731
v9.9057837C-2.0106475,11.7193327-1.3380729,12.3984375,0.0136063,12.3984375z M0.0593152,11.3471317
c-0.6725746,0-1.0186567-0.3591423-1.0186567-1.0121269V0.4684002c0-0.6464552,0.346082-1.0186567,1.0251865-1.0186567h2.9057837

v3.7938433c0,0.8227613,0.4113805,1.2276118,1.227612,1.2276118h3.7220149v5.8638062
c0,0.6529846-0.3460822,1.0121269-1.0251865,1.0121269H0.0593152z M4.3167777,3.4851911
c-0.2611938,0-0.3591416-0.1044776-0.3591416-0.3656716v-3.4673507l3.761194,3.8330224H4.3167777z M5.8839421,6.2734375H0.9277854
c-0.2350746,0-0.4113806,0.1763058-0.4113806,0.3983207c0,0.2285452,0.176306,0.404851,0.4113806,0.404851h4.9561567
c0.2285447,0,0.3983207-0.1763058,0.3983207-0.404851C6.2822628,6.4497433,6.1124868,6.2734375,5.8839421,6.2734375z
M5.8839421,8.5523558H0.9277854c-0.2350746,0-0.4113806,0.1828356-0.4113806,0.4113798

c0,0.2220154,0.176306,0.3917913,0.4113806,0.3917913h4.9561567c0.2285447,0,0.3983207-0.169776,0.3983207-0.3917913

C6.2822628,8.7351913,6.1124868,8.5523558,5.8839421,8.5523558z"></path></g></svg> Improving Build Efficiency with Good Coding Practices<!----> <div data-v-702ae484="" data-v-39207972=""

class="content">Shorten compile times by reducing the number of symbols your code exports and by giving the compiler the explicit information it needs. <!----><!----><!----> <!----> <a data-v-39207972="" href="/documentation/xcode/reduce-terminations-in-your-app" class="link has-adjacent-elements"> <svg data-v-7f60a732="" data-v-9d2ba25c="" aria-hidden="true" xmlns="http://www.w3.org/2000/svg" class="svg-icon article-icon topic-icon" viewBox="0 0 14 14"><g data-v-7f60a732="" transform="translate(3.616699, 1.608398)"><path data-v-7f60a732="" d="M0.0136063,12.3984375H6.948308c1.3516788,0,2.0242538-0.6856346,2.0242538-2.0438433V4.4254899
c0-0.842351-0.0979481-1.2080226-0.6203365-1.7434704L4.7542777-0.9812267
C4.2580094-1.490555,3.8466287-1.6015625,3.1152854-1.6015625H0.0136063c-1.3451493,0-2.0242538,0.6921641-2.0242538,2.0503731
v9.9057837C-2.0106475,11.7193327-1.3380729,12.3984375,0.0136063,12.3984375z M0.0593152,11.3471317
c-0.6725746,0-1.0186567-0.3591423-1.0186567-1.0121269V0.4684002c0-0.6464552,0.346082-1.0186567,1.0251865-1.0186567h2.9057837

v3.7938433c0,0.8227613,0.4113805,1.2276118,1.227612,1.2276118h3.7220149v5.8638062
c0,0.6529846-0.3460822,1.0121269-1.0251865,1.0121269H0.0593152z M4.3167777,3.4851911
c-0.2611938,0-0.3591416-0.1044776-0.3591416-0.3656716v-3.4673507l3.761194,3.8330224H4.3167777z M5.8839421,6.2734375H0.9277854
c-0.2350746,0-0.4113806,0.1763058-0.4113806,0.3983207c0,0.2285452,0.176306,0.404851,0.4113806,0.404851h4.9561567
c0.2285447,0,0.3983207-0.1763058,0.3983207-0.404851C6.2822628,6.4497433,6.1124868,6.2734375,5.8839421,6.2734375z
M5.8839421,8.5523558H0.9277854c-0.2350746,0-0.4113806,0.1828356-0.4113806,0.4113798

c0,0.2220154,0.176306,0.3917913,0.4113806,0.3917913h4.9561567c0.2285447,0,0.3983207-0.169776,0.3983207-0.3917913

C6.2822628,8.7351913,6.1124868,8.5523558,5.8839421,8.5523558z"></path></g></svg> Reducing Terminations in Your App<!----> Minimize how frequently the system stops your app by addressing common termination reasons. <!----><!----><!----> <!----> <h3 data-v-3277df5c="" class="title">Instruments</h3> <!----><!----><!----> <a data-v-39207972="" href="/documentation/metrickit/improving_your_app_s_performance/creating_custom_modelers_for_intelligent_instruments" class="link has-adjacent-

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c0,1.2542372-0.4203396,1.7423725-1.5593224,1.8237286c-0.0813551,0.0067797-0.1423721,0.020339-0.2101688,0.0338984

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Custom Modelers for Intelligent Instruments<!----> Create Custom Modelers with the CLIPS language and learn how the embedded rules engine works. <!----><!----><!----> <!----> <h3 data-v-3277df5c="" class="title">Associated Domains and Universal Links</h3> <!----><!----><!----> <a data-v-39207972="" href="/documentation/xcode/allowing-apps-and-websites-to-link-to-your-content" class="link has-adjacent-elements"> <svg data-v-7f60a732="" data-v-9d2ba25c="" aria-hidden="true" xmlns="http://www.w3.org/2000/svg" class="svg-icon api-reference-icon topic-icon" viewBox="0 0 14 14"><title data-v-7f60a732="">API Reference</title><g data-v-7f60a732="" transform="translate(2.116699, 4.455566)"><path data-v-7f60a732="" d="M-1.2412647-0.767793c0.4863523,0,0.8754342-0.3890819,0.8754342-0.8684863
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c-0.319603,0-0.5627792,0.243176-0.5627792,0.5627789C1.2669238,7.0763755,1.5101,7.3195519,1.829703,7.3195519z"></path></g></svg> Allowing Apps and Websites to Link to Your Content<!----> Use universal links to link directly to content within your app and share data securely. <!----><!----><!----> <!----> </section><!----><!----><!----><!----></main> Current page is Xcode <!----> <section data-v-4ba26326="" data-v-2fddaabf="" id="globalfooter-wrapper" data-v-24f4912f=""><footer data-v-4ba26326="" id="globalfooter" role="contentinfo"><nav data-v-4ba26326=""

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Developer Documentation </section> <h3 data-v-4ba26326=""> Platforms </h3><ul data-v-4ba26326=""><li data-v-4ba26326=""><a data-v-4ba26326="" href="/ios/"> iOS <li data-v-4ba26326=""><a data-v-4ba26326="" href="/ipados/"> iPadOS <li data-v-4ba26326=""><a data-v-4ba26326="" href="/macos/"> macOS <li data-v-4ba26326=""><a data-v-4ba26326="" href="/tvos/"> tvOS <li data-v-4ba26326=""><a data-v-4ba26326="" href="/watchos/"> watchOS <h3 data-v-4ba26326=""> Tools </h3><ul data-v-4ba26326=""><li data-v-4ba26326=""><a data-v-4ba26326="" href="/swift/"> Swift <li data-v-4ba26326=""><a data-v-4ba26326="" href="/swiftui/"> SwiftUI <li data-v-4ba26326=""><a data-v-4ba26326="" href="/swift-playgrounds/"> Swift Playgrounds <li data-v-4ba26326=""><a data-v-4ba26326="" href="/testflight/"> TestFlight <li data-v-4ba26326=""><a data-v-4ba26326="" href="/xcode/"> Xcode <li data-v-4ba26326=""><a data-v-4ba26326="" href="/xcode-cloud/"> Xcode Cloud <li data-v-4ba26326=""><a data-v-4ba26326="" href="/sf-symbols/"> SF Symbols <h3 data-v-4ba26326=""> Topics & Technologies </h3><ul data-v-4ba26326=""><li data-v-4ba26326=""><a data-v-4ba26326="" href="/accessibility/"> Accessibility <li data-v-4ba26326=""><a data-v-4ba26326="" href="/accessories/"> Accessories <li data-v-4ba26326=""><a data-v-4ba26326="" href="/app-extensions/"> App Extensions <li data-v-4ba26326=""><a data-v-4ba26326="" href="/app-store/"> App Store <li data-v-4ba26326=""><a data-v-4ba26326="" href="/audio/"> Audio & Video <li data-v-4ba26326=""><a data-v-4ba26326="" href="/augmented-reality/"> Augmented Reality <li data-v-4ba26326=""><a data-v-4ba26326="" href="/business/"> Business <li data-v-4ba26326=""><a data-v-4ba26326="" href="/design/"> Design <li data-v-4ba26326=""><a data-v-4ba26326="" href="/distribute/"> Distribution <li data-v-4ba26326=""><a data-v-4ba26326="" href="/education/"> Education <li data-v-4ba26326=""><a data-v-4ba26326="" href="/fonts/"> Fonts <li data-v-4ba26326=""><a data-v-4ba26326="" href="/games/"> Games <li data-v-4ba26326=""><a data-v-4ba26326="" href="/health-fitness/"> Health & Fitness <li data-v-4ba26326=""><a data-v-4ba26326="" href="/in-app-purchase/"> In-App Purchase <li data-v-4ba26326=""><a data-v-4ba26326="" href="/localization/"> Localization <li data-v-4ba26326=""><a data-v-4ba26326="" href="/maps/"> Maps & Location <li data-v-4ba26326=""><a data-v-4ba26326="" href="/machine-learning/"> Machine Learning <li data-v-4ba26326=""><a data-v-4ba26326="" href="/security/"> Security <li data-v-4ba26326=""><a data-v-4ba26326="" href="/safari/"> Safari & Web <h3 data-v-4ba26326=""> Resources </h3><ul data-v-4ba26326=""><li data-v-4ba26326=""><a data-v-4ba26326="" href="/documentation/"> Documentation <li data-v-

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news, visit <a data-v-4ba26326="" href="/news/">News and Updates.
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data-v-3228f94a="" class="text">Light </label><label data-v-

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